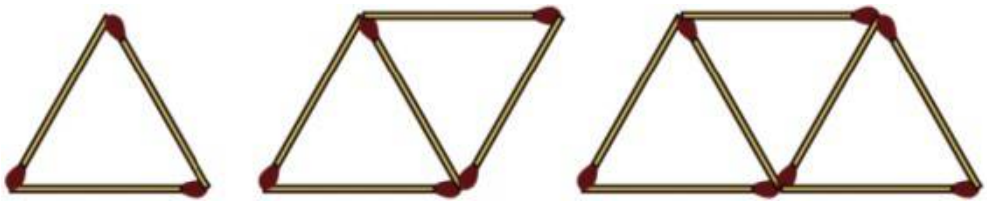
WANDOOR GANITHAM – S.S.L.C STUDY MATERIAL 2021

FOCUS AREA - QUESTION BANK - ARITHMETIC SEQUENCES

1 *Let's make the figures shown in the figure using matchsticks .*

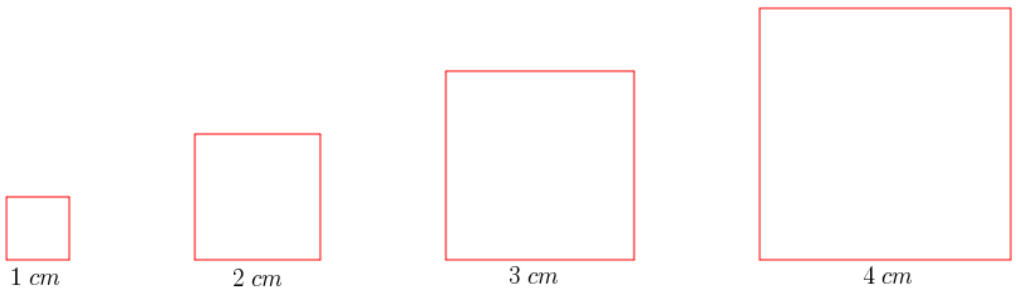


a) *If we continue this process , how many matchsticks are there in the fifth figure*?

b) *If we continue this process , what is the sequence of numbers of matchsticks used in each figure* ?

c) *Check whether the sequence obtained above is an arithmetic sequence or not* ?

2 *In the figure some squares are drawn . Length of the sides of them are also shown in the figure .*

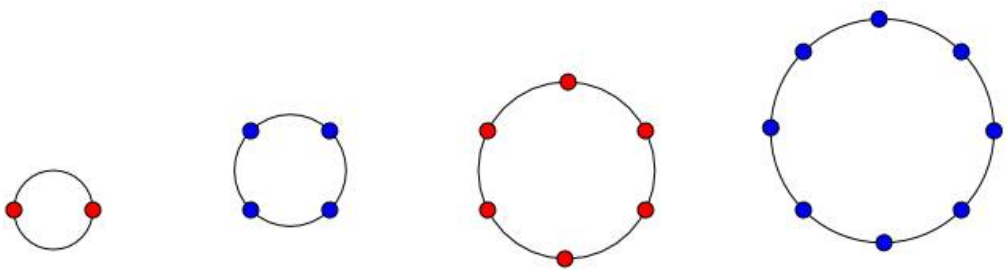


a) *If we continue this process ,what will be the perimeter of the fifth square* ?

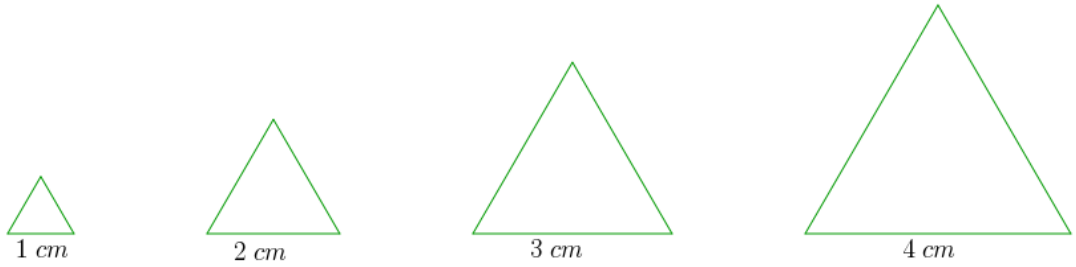
b) *If we continue this process , what is the sequence of the perimeter of the squares* ?

c) *Check whether the sequence obtained above is an arithmetic sequence or not* ?

3 *In the figure some dots are marked on the circles*



a) *If we continue this process , how many dots are there in the fifth circle* ?

	b) ***If we continue this process , what is the sequence of the dots in in each circle ?*** **c)** ***Check whether the sequence obtained above is an arithmetic sequence or not ?***
4	***In the figure some equilateral triangles are drawn . Length of the sides of them are also shown in the figure .*** **a)** ***If we continue this process ,what will be the perimeter of the fifth triangle ?***  **b)** ***If we continue this process , what is the sequence of the perimeter of the triangles ?*** **c)** ***Check whether the sequence obtained above is an arithmetic sequence or not ?***
5	**a)** ***Write the sequence of natural numbers which are multiplied by 3 ?*** **b)** ***Write the sequence of natural numbers which are multiplied by 3 and added to 1 ?*** **c)** ***Check whether the sequence obtained above is an arithmetic sequence or not ?***
6	**a)** ***Write the sequence of natural numbers which are multiplied by 5 ?*** **b)** ***Write the sequence of natural numbers which are multiplied by 5 and subtract 2 from them ?*** **c)** ***Check whether the sequence obtained above is an arithmetic sequence or not ?***
7	**a)** ***Write down the sequence of natural numbers ending in 1 ?*** **b)** ***Check whether the sequence obtained above is an arithmetic sequence or not ?***
8	**a)** ***Write down the sequence of natural numbers ending in 2 or 7 ?*** **b)** ***Check whether the sequence obtained above is an arithmetic sequence or not ?***
9	**a)** ***Write an arithmetic sequence of first term 7 and common difference 4 ?*** **b)** ***What is its 11 th term ?*** **c)** ***Can the difference between any two terms of this sequence be 100 ? Why ?***
10	**a)** ***Write an arithmetic sequence of first term 10 and common difference 6 ?***

	b) ***What is its 8^{th} term*** **?** **c)** ***Can the difference between any two terms of this sequence be*** **54** ***? Why ?***
11	**a)** ***Write an arithmetic sequence of common difference*** **5** **?** **b)** ***What is its 9^{th} term*** **?** **c)** ***Can the difference between any two terms of this sequence be*** **72** ***? Why ?***
12	**a)** ***Write an arithmetic sequence of common difference*** **10** **?** **b)** ***What is its 10^{th} term*** **?** **c)** ***Can the difference between any two terms of this sequence be*** **63** ***? Why ?***
13	***Consider the arithmetic sequence*** **5 , 8 , 11 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its 11^{th} term*** **?** **c)** ***What is the remainder when each term of this sequence is divided by the common difference*** **?** **d)** ***What is its algebraic form*** **?**
14	***Consider the arithmetic sequence*** **6 , 10 , 14 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its 15^{th} term*** **?** **c)** ***What is the remainder when each term of this sequence is divided by the common difference*** **?** **d)** ***What is its algebraic form*** **?**
15	***Consider the arithmetic sequence*** **3 , 10 , 17 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its 20^{th} term*** **?** **c)** ***What is its algebraic form*** **?**
16	***Consider the arithmetic sequence*** **1 , 6 , 11 , ...**

	a) ***What is its common difference*** **?** **b)** ***What is its*** 18^{th} ***term*** **?** **c)** ***What is its algebraic form*** **?**
17	***The algebraic form of an arithmetic sequence is*** **3 n + 2** **a)** ***What is its common difference*** **?** **b)** ***What is its first term*** **?** **c)** ***What is the remainder when each term of this sequence is divided by*** **3 ?**
18	***The algebraic form of an arithmetic sequence is*** **5 n + 3** **a)** ***What is its common difference*** **?** **b)** ***What is its first term*** **?** **c)** ***What is the remainder when each term of this sequence is divided by*** **5 ?**
19	***The algebraic form of an arithmetic sequence is*** **4 n - 1** **a)** ***What is its common difference*** **?** **b)** ***What is its first term*** **?** **c)** ***What is the remainder when each term of this sequence is divided by*** **4 ?**
20	***The algebraic form of an arithmetic sequence is*** **2n - 1** **a)** ***What is its common difference*** **?** **b)** ***What is its first term*** **?** **c)** ***What is the remainder when each term of this sequence is divided by*** **2 ?**
21	***Consider the arithmetic sequence*** **5 , 9 , 13 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **101** ***in this sequence ?***
22	***Consider the arithmetic sequence*** **8 , 13 , 18 , ...**

	a) ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **203** ***in this sequence*** **?**
23	***Consider the arithmetic sequence*** **4 , 10 , 16 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **58** ***in this sequence*** **?**
24	***Consider the arithmetic sequence*** **2 , 11 , 20 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **263** ***in this sequence*** **?**
25	***Consider the arithmetic sequence*** **3 , 10 , 17 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **136** ***in this sequence*** **?**
26	***Consider the arithmetic sequence*** **7 , 11 , 15, ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **123** ***in this sequence*** **?** **d)** ***Is*** **130** ***a term of this sequence*** **?** ***Why*** **?**
27	***Consider the arithmetic sequence*** **9 , 14 , 19, ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **154** ***in this sequence*** **?** **d)** ***Is*** **170** ***a term of this sequence*** **?** ***Why*** **?**
28	**4^{th}** ***term of an arithmetic sequence is*** **14** ***and its*** **9^{th}** ***term is*** **29**

	a) ***What is its common difference*** **?** **b)** ***What is its first term*** **?** **c)** ***Find the position of 62 in this sequence*** **?**
29	**5th** ***term of an arithmetic sequence is*** **31** ***and its*** **11th** ***term is*** **67** **a)** ***What is its common difference*** **?** **b)** ***What is its first term*** **?** **c)** ***Find the position of*** **601** ***in this sequence*** **?**
30	**10th** ***term of an arithmetic sequence is*** **74** ***and its*** **20th** ***term is*** **154** **a)** ***What is its common difference*** **?** **b)** ***What is its first term*** **?** **c)** ***Find the position of*** **474** ***in this sequence*** **?**
31	**8th** ***term of an arithmetic sequence is*** **29** ***and its*** **15th** ***term is*** **57** **a)** ***What is its common difference*** **?** **b)** ***What is its first term*** **?** **c)** ***Find the position of*** **97** ***in this sequence*** **?**
32	***Consider the arithmetic sequence*** **4 , 7 , 10 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **16** ***in this sequence*** **?** **d)** ***Check whether the square of any term is a term of this sequence or not ?***
33	***Consider the arithmetic sequence*** **7 , 13 , 19 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of 49 in this sequence*** **?** **d)** ***Check whether the square of any term is a term of this sequence or not ?***
34	***Consider the arithmetic sequence*** **6 , 11 , 16 , ...**

	a) ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of*** **36** ***in this sequence*** **?** **d)** ***Check whether the square of any term is a term of this sequence or not ?***
35	***Consider the arithmetic sequence*** **3 , 13 , 23 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Write down the next three terms of this sequence ?*** **d)** ***Is there any perfect square term in this sequence ? Justify your answer ?***
36	***Consider the arithmetic sequence*** **7 , 12 , 17 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Write down the next three terms of this sequence ?*** **d)** ***Is there any perfect square term in this sequence ? Justify your answer ?***
37	***Consider the arithmetic sequence*** **70 , 67 , 64 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is the remainder when each positive term of this sequence is divided by*** **3 ?** **c)** ***Which is the smallest positive number in this sequence*** **?** **d)** ***Which is the largest negative number in this sequence*** **?**
38	***Consider the arithmetic sequence*** **92 , 88 , 84 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is the remainder when each positive term of this sequence is divided by*** **4 ?** **c)** ***Which is the smallest positive number in this sequence*** **?** **d)** ***Which is the largest negative number in this sequence*** **?**
39	***Consider the arithmetic sequence*** **63 , 58 , 53 , ...**

	a) ***What is its common difference ?*** **b)** ***What is the remainder when each positive term of this sequence is divided by 5 ?*** **c)** ***Which is the smallest positive number in this sequence ?*** **d)** ***What is its algebraic form ?*** **e)** ***How many positive numbers are there in this sequence ?***
40	***Consider the arithmetic sequence 82 , 72 , 62 , ...*** **a)** ***What is its common difference ?*** **b)** ***What is the remainder when each positive term of this sequence is divided by 10 ?*** **c)** ***Which is the smallest positive number in this sequence ?*** **d)** ***What is its algebraic form ?*** **e)** ***How many positive numbers are there in this sequence ?***
41	***Consider the arithmetic sequence 6 , 10 , 14 , ...*** **a)** ***What is its common difference ?*** **b)** ***What is its algebraic form ?*** **c)** ***Find the position of the term obtained by adding 40 to its 20^{th} term ?***
42	***Consider the arithmetic sequence 7 , 10 , 13 , ...*** **a)** ***What is its common difference ?*** **b)** ***What is its algebraic form ?*** **c)** ***Find the position of the term obtained by adding 27 to its 15^{th} term ?***
43	***Consider the arithmetic sequence 8 , 14 , 20 , ...*** **a)** ***What is its common difference ?*** **b)** ***What is its algebraic form ?*** **c)** ***Find the position of the term obtained by subtracting 48 from its 40 th term ?***

44	***Consider the arithmetic sequence*** **3 , 8 , 13 , ...** **a)** ***What is its common difference*** **?** **b)** ***What is its algebraic form*** **?** **c)** ***Find the position of the term obtained by subtracting*** **100** ***from its*** **30** th ***term ?***
45	***Consider the sequence of two digit numbers which leave a remainder*** **1** ***on divisible by*** **3 .** **a)** ***What is its common difference*** **?** **b)** ***Which is the smallest number in this sequence*** **?** **c)** ***How many two digit numbers are there , which leave a remainder 1 on divisible by 3 ?***
46	***Consider the sequence of three digit numbers which leave a remainder*** **1** ***on divisible by*** **5 .** **a)** ***What is its common difference*** **?** **b)** ***Which is the smallest number in this sequence*** **?** **c)** ***How many three digit numbers are there , which leave a remainder*** **1** ***on divisible by 5 ?***
47	***Find the following sums .*** **a) 1 + 2 + 3 + 4 + 5 + ... + 20** **b) 2 + 4 + 6 + 8 + 10 + ... + 40** **c) 5 + 7 + 9 + 11 + 13 + ... + 43**
48	***Find the following sums .*** **a) 1 + 2 + 3 + 4 + 5 + ... + 40** **b) 5 + 10 + 15 + 20 + 25 + ... + 200** **c) 7 + 12 + 17 + 22 + 27 + ... + 202**

49	***Find the following sums .*** **a) 1 + 2 + 3 + 4 + 5 + ... + 60** **b) 4 + 8 + 12 + 16 + 20 + ... + 240** **c) 5 + 9 + 13 + 17 + 21 + ... + 241** **d) 9 + 17 + 25 + 33 + 41 + ... + 481**
50	***Find the following sums .*** **a) 1 + 2 + 3 + 4 + 5 + ... + 100** **b) 3 + 6 + 9 + 12 + 15 + ... + 300** **c) 13 + 16 + 19 + 22 + 25 + ... + 310** **d) 12 + 15 + 18 + 21 + 24 + ... + 309**
51	***Consider the arithmetic sequence* 5 , 9 , 13 , ...** **a) *What is its common difference* ?** **b) *What is its* 7 th *term* ?** **c) *What is the sum of first* 13 *terms of this sequence* ?**
52	***Consider the arithmetic sequence* 8 , 15 , 22 , ...** **a) *What is its common difference* ?** **b) *What is its* 6th *term* ? ?** **c) *What is the sum of first* 11 *terms of this sequence* ?**
53	***Consider the arithmetic sequence* 5 , 9 , 13 , ...** **a) *What is its common difference* ?** **b) *What is its* 8th *term* ?** **c) *What is the sum of first* 15 *terms of this sequence* ?**
54	***First term f an arithmetic sequence is* 7 *and its common difference is* 5 .** **a) *What is its* 4 th *term* ?** **b) *What is the sum of first* 7 *terms of this sequence* ?** **c) *What is the sum of first* 8 *terms of this sequence* ?**

55	*First term f an arithmetic sequence is* **9** *and its common difference is* **4** . **a)** *What is its* **7**th *term* **?** **b)** *What is the sum of first* **13** *terms of this sequence* **?** **c)** *What is the sum of first* **14** *terms of this sequence* **?**
56	*First term of an arithmetic sequence is* **5** *and its common difference is* **7** . **a)** *What is its* **11**th *term* **?** **b)** *What is the sum of first* **21** *terms of this sequence* **?** **c)** *What is the sum of first* **22** *terms of this sequence* **?**
57	*Common difference of an arithmetic sequence is* **3** *and its* **14**th *term* **44** . **a)** *What is its* **15**th *term* **?** **b)** *What is the sum of first* **29** *terms of this sequence* **?**
58	*Common difference of an arithmetic sequence is 5 and its* **21**st *term* **108** . **a)** *What is its* **22**th *term* **?** **b)** *What is the sum of first* **43** *terms of this sequence* **?**
59	*Common difference of an arithmetic sequence is* **7** *and its* **11**th *term* **74** . **a)** *What is its* **10**th *term* **?** **b)** *What is the sum of first* **19** *terms of this sequence* **?**
60	*Common difference of an arithmetic sequence is* **8** *and its* **18**th *term* **142** . **a)** *What is its* **17**th *term* **?** **b)** *What is the sum of first* **33** *terms of this sequence* **?**
61	*The algebraic form of an arithmetic sequence is* **4 n + 3** . **a)** *What is its* **13**th *term* **?** **b)** *What is the sum of first* **25** *terms of this sequence* **?**
62	*The algebraic form of an arithmetic sequence is* **7 n + 2** . **a)** *What is its* **16**th *term* **?** **b)** *What is its* **16**th *term* **?**

63	*The algebraic form of an arithmetic sequence is* 9 n - 5 . a) *What is its* 12^{th} *term* ? b) *What is its* 23^{th} *term* ?
64	4^{th} *term of an arithmetic sequence is* 9 *and its* 10^{th} *term is* 21 . a) *What is its common difference* ? b) *What is its* 5^{th} *term* ? c) *What is the sum of first* 9 *terms of this sequence* ?
65	8^{th} *term of an arithmetic sequence is* 33 *and its* 11^{th} *term is* 45 . a) *What is its common difference* ? b) *What is its* 9^{th} *term* ? c) *What is the sum of first* 17 *terms of this sequence* ?
66	7^{th} *term of an arithmetic sequence is* 37 *and its* 18^{th} *term is* 92 . a) *What is its common difference* ? b) *What is its* 17^{th} *term* ? c) *What is the sum of first* 33 *terms of this sequence* ?
67	16^{th} *term of an arithmetic sequence is* 157 *and its* 26^{th} *term is* 257 . a) *What is its common difference* ? b) *What is its* 25^{th} *term* ? c) *What is the sum of first* 49 *terms of this sequence* ?
68	*The sum of first* 7 *terms of an arithmetic sequence is* 105 *and the sum of first* 15 *terms is* 465 . a) *What is its* 4^{th} *term* ? b) *What is its* 8^{th} *term* ? c) *What is its common difference* ? d) *What is its algebraic form* ?

69	*The sum of first 3 terms of an arithmetic sequence is* 30 *and the sum of first* 13 *terms is* 520 . a) *What is its second term* ? b) *What is its* 7^{th} *term* ? c) *What is its common difference* ? d) *What is its algebraic form* ?
70	*The sum of first* 5 *terms of an arithmetic sequence is* 30 *and the sum of first* 11 *terms is* 132 . a) *What is its* 3^{rd} *term* ? b) *What is its* 6^{th} *term* ? c) *What is its common difference* ? d) *What is its algebraic form* ?
71	*Consider the arithmetic sequence* 7 , 10 , 13 , ... a) *What is its common difference* ? b) *What is its* 10^{th} *term* ? c) *What is the sum of first* 10 *terms of this sequence* ?
72	*Consider the arithmetic sequence* 8 , 14 , 20 , ... a) *What is its common difference* ? b) *What is its* 20^{th} *term* ? c) *What is the sum of first* 20 *terms of this sequence* ?
73	*Consider the arithmetic sequence* 2 , 7 , 12 , ... a) *What is its common difference* ? b) *What is its* 40^{th} *term* ? c) *What is the sum of first* 40 *terms of this sequence* ?
74	*First term f an arithmetic sequence is* 4 *and its common difference is* 3 . a) *What is its* 20^{th} *term* ? b) *What is the sum of first* 20 *terms of this sequence* ?

75	***First term f an arithmetic sequence is* 10 *and its common difference is* 7 .** **a) *What is its* 12 th *term* ?** **b) *What is the sum of first* 12 *terms of this sequence* ?**
76	***Common difference of an arithmetic sequence is* 4 *and its* 15th *term* 62 .** **a) *What is its* 16 th *term* ?** **b) *What is the sum of first* 16 *terms of this sequence* ?**
77	***Common difference of an arithmetic sequence is* 3 *and its* 25th *term is* 76 .** **a) *What is its* 26 th *term* ?** **b) *What is the sum of first* 26 *terms of this sequence* ?**
78	***Common difference of an arithmetic sequence is* 5 *and its* 31 st *term is* 151 .** **a) *What is its* 30th *term* ?** **b) *What is the sum of first* 30 *terms of this sequence* ?**
79	***Common difference of an arithmetic sequence is* 8 *and its* 25 th *term is* 193 .** **a) *What is its* 24 th *term* ?** **b) *What is the sum of first 24 terms of this sequence* ?**
80	***The algebraic form of an arithmetic sequence is* 3 n + 1 .** **a) *What is its* 22 th *term* ?** **b) *What is the sum of first* 22 *terms of this sequence* ?**
81	***The algebraic form of an arithmetic sequence is* 10 n + 3 .** **a) *What is its* 36 th *term* ?** **b) *What is the sum of first* 36 *terms of this sequence* ?**
82	***The algebraic form of an arithmetic sequence is* 11 n - 5 .** **a) *What is its* 20 th *term* ?** **b) *What is the sum of first* 20 *terms of this sequence* ?**

83	**5^{th} *term of an arithmetic sequence is* 15 *and its* 9^{th} *term is* 23 .** **a) *What is its common difference* ?** **b) *What is its* 6^{th} *term* ?** **c) *What is the sum of first* 6 *terms of this sequence* ?**
85	**11^{th} *term of an arithmetic sequence is* 31 *and its* 15^{th} *term is* 43 .** **a) *What is its common difference* ?** **b) *What is its* 12^{th} *term* ?** **c) *What is the sum of first* 12 *terms of this sequence* ?**
86	**8^{th} *term of an arithmetic sequence is* 33 *and its* 17^{th} *term is* 69 .** **a) *What is its common difference* ?** **b) *What is its* 16^{th} *term* ?** **c) *What is the sum of first* 16 *terms of this sequence* ?**
87	**10^{th} *term of an arithmetic sequence is* 54 *and its* 21^{st} *term is* 109 .** **a) *What is its common difference* ?** **b) *What is its* 20^{th} *term* ?** **c) *What is the sum of first* 20 *terms of this sequence* ?**
88	***The sum of first* 5 *terms of an arithmetic sequence is* 130 *and the sum of first* 6 *terms is* 186 .** **a) *What is its third term* ?** **b) *What is its* 6^{th} *term* ?** **c) *What is its common difference* ?** **d) *What is its algebraic form* ?**

89	***The sum of first 7 terms of an arithmetic sequence is 203 and the sum of first 8 terms is 264 .*** **a) *What is its 4 th term ?*** **b) *What is its 8 th term ?*** **c) *What is its common difference ?*** **d) *What is its algebraic form ?***
90	***The sum of first 9 terms of an arithmetic sequence is 99 and the sum of first 10 terms is 120 .*** **a) *What is its 5 th term ?*** **b) *What is its 10 th term ?*** **c) *What is its common difference ?*** **d) *What is its algebraic form ?***
91	***Consider the sequence of two digit even numbers*** **a) *What is its common difference ?*** **b) *Which is the smallest number in this sequence ?*** **c) *How many two digit even numbers are there ?*** **d) *What is the sum of all two digit even numbers ?***
92	***Consider the sequence of three digit odd numbers*** **a) *What is its common difference ?*** **b) *Which is the smallest number in this sequence ?*** **c) *How many three digit odd numbers are there ?*** **d) *What is the sum of all three digit odd numbers ?***

93	***Consider the sequence of two digit numbers which leave a remainder* 1 *on divisible by* 2 **a)** ***What is its common difference*** **?** **b)** ***Which is the smallest number in this sequence*** **?** **c)** ***How many two digit numbers are there which leave a remainder*** 1 ***on divisible by*** 2 **?** **d)** ***What is the sum of such numbers*** **?**
94	***Consider the sequence of three digit numbers which leave a remainder*** 2 ***on divisible by*** 5 **a)** ***What is its common difference*** **?** **b)** ***Which is the smallest number in this sequence*** **?** **c)** ***How many three digit numbers are there which leave a remainder*** 2 ***on divisible by*** 5 **?** **d)** ***What is the sum of such numbers*** **?**
95	***Consider the arithmetic sequence*** 9 , 15 , 21 , ... **a)** ***What is its common difference*** **?** **b)** ***What is the remainder when each term of this sequence is divided by*** 3 **?** **c)** ***What is the sum of first 4 terms of this sequence ?*** **d)** ***Can the sum of any*** 20 ***terms of this sequence be 1000*** **?** ***Why*** **?**
96	***Consider the arithmetic sequence*** 8 , 20 , 32 , ... **a)** ***What is its common difference*** **?** **b)** ***What is the remainder when each term of this sequence is divided by*** 4 **?** **c)** ***What is the sum of first*** 5 ***terms of this sequence ?*** **d)** ***Can the sum of any*** 30 ***terms of this sequence be*** 1090 **?** ***Why*** **?**

97	***Consider the arithmetic sequence* 7 , 13 , 19 , ...** **a)** ***What is its common difference* ?** **b)** ***Write down the next three more terms of this sequence* ?** **c)** ***Can the sum of any* 25 *terms of this sequence be 600* ? *Why* ?**
98	***Consider the arithmetic sequence* 5 , 9 , 13 , ...** **a)** ***What is its common difference* ?** **b)** ***Write down the next three more terms of this sequence* ?** **c)** ***Is the sum any two terms of this sequence again a term of this sequence* ? *Why* ?**
99	**a)** ***What is the common difference of the sequence* 5 , 8 , 11 , ... ?** **b)** ***What is the common difference of the sequence* 7 , 10 , 13 , ... ?** **c)** ***What is the difference between the sum of first* 11 *terms of these sequences* ?**
100	**a)** ***What is the common difference of the sequence* 6 , 10 , 14 , ... ?** **b)** ***What is the common difference of the sequence* 8 , 12 , 16 , ... ?** **c)** ***What is the difference between the sum of first* 15 *terms of these sequences* ?**
101	**a)** ***What is the common difference of the sequence* 5 , 10 , 15 , ... ?** **b)** ***What is the common difference of the sequence* 7 , 12 , 17 , ... ?** **c)** ***What is the difference between the sum of first* 13 *terms of these sequences* ?**
102	***Look at the number pattern given below.*** **1** **2 3** **4 5 6** **7 8 9 10** **.....** **.....**

	a) ***Write down the next two more lines of this pattern*** **?** **b)** ***How many numbers are there in the*** **10** th ***line*** **?** **c)** ***What is the last number in the*** **9** th ***line*** **?** **d)** ***What is the first number in the*** **10** th ***line*** **?** **e)** ***What is the sum of the numbers in the 10***th ***line*** **?**
103	***Look at the number pattern given below.*** **1** **2 3** **4 5 6** **7 8 9 10** **.....** **.....** **a)** ***Write down the next two more lines of this pattern*** **?** **b)** ***How many numbers are there in the*** **20** th ***line*** **?** **c)** ***What is the last number in the*** **19** th ***line*** **?** **d)** ***What is the first number in the*** **20** th ***line*** **?** **e)** ***What is the sum of all numbers in the first 20 lines ?***
104	***Look at the number pattern given below.*** **1** **2 3** **4 5 6** **7 8 9 10** **.....** **.....**

a) *Write down the next two more lines of this pattern ?*

b) *What is the last number in the* 14 th *line ?*

c) *What is the first number in the* 15 th *line ?*

d) *How many numbers are there in the* 15 th *line ?*

e) *What is the sum of the numbers in the* 15 th *line ?*

105 *What is the measure of the largest angle ?*

Pattern 1	Pattern 2
1	3
2 3	6 9
4 5 6	12 15 18
7 8 9 10	21 24 27 30
.....	.....
.....	.....
(*Pattern* 1)	(*Pattern* 2)

	Pattern 1	*Pattern* 2
The next two more lines ofthe patterns	a)	b).....
last number in the 8 th line	c)	d) .....
First number in the 8 th line	e)	f).....

106 *Look at the number patterns given below.*

Pattern 1	Pattern 2
1	4
2 3	7 10
4 5 6	13 16 19
7 8 9 10	22 25 28 31
.....	.....
.....	.....
(*Pattern* 1)	(*Pattern* 2)

	Pattern 1	Pattern 2
The next two more lines ofthe patterns	a)	b).....
last number in the 9 th line	c)	d) .....
First number in the 10 th line	e)	f).....

107 *Look at the number patterns given below.*

1

2 3

4 5 6

7 8 9 10

.....

.....

(*Pattern* 1)

6

10 14

18 22 26

30 34 38 42

.....

.....

(*Pattern* 2)

	Pattern 1	Pattern 2
The next two more lines of the patterns	a)	b).....
last number in the 12 th line	c)	d) .....
First number in the 13 th line	e)	f).....

108 *Look at the number pattern given below.*

1

2 3 4

5 6 7 8 9

10 11 12 13 14 15 16

.....

.....

	a) ***Write down the next two more lines of this pattern*** **?** **b)** ***How many numbers are there in the*** **10** th ***line*** **?** **c)** ***What is the last number in the*** **9** th ***line*** **?** **d)** ***What is the first number in the*** **10** th ***line*** **?** **e)** ***What is the sum of the numbers in the*** 10^{th} ***line*** **?**
109	***Look at the number pattern given below.*** **1** **2 3 4** **5 6 7 8 9** **10 11 12 13 14 15 16** **.....** **.....** **a)** ***Write down the next two more lines of this pattern*** **?** **b)** ***How many numbers are there in the*** **12** th ***line*** **?** **c)** ***What is the last number in the*** **11** th ***line*** **?** **d)** ***What is the first number in the*** **12** th ***line*** **?** **e)** ***What is the sum of the numbers in the*** **12** th ***line*** **?**

EXTRA QUESTIONS

110	***The sum of the first and 7th terms of an arithmetic sequence is 22*** **a)** ***What is the sum of its 3rd and 5th terms ?*** **b)** ***What is its 4th term ?*** **c)** ***What is the sum of first 7 terms of this sequence ?***
111	***The sum of the first and 11th terms of an arithmetic sequence is 40 .*** **a)** ***What is the sum of its 5 th and 7 th terms ?*** **b)** ***What is its 6th term ?*** **c)** ***What is the sum of first 11 terms of this sequence ?***
112	***The sum of the first and 25th terms of an arithmetic sequence is 200.*** **a)** ***What is the sum of its 12 th and 14 th terms ?*** **b)** ***What is its 13th term ?*** **c)** ***What is the sum of first 25 terms of this sequence ?***
113	***The sum of first 4 terms of an arithmetic sequence is 20 and the sum of first 8 terms is 72 .*** **a)** ***What is the sum of its first and 4 th terms ?*** **b)** ***What is the sum of its first and 8 th terms ?*** **c)** ***What is its common difference ?*** **d)** ***What is its first term ?***
114	***The sum of first 6 terms of an arithmetic sequence is 78 and the sum of first 14 terms is 406 .*** **a)** ***What is the sum of its first and 6 th terms ?*** **b)** ***What is the sum of its first and 14 th terms ?*** **c)** ***What is its common difference ?*** **d)** ***What is its first term ?***

115	***The sum of first 10 terms of an arithmetic sequence is 120 and the sum of first 20 terms is 440 .*** **a)** ***What is the sum of its first and 10 th terms ?*** **b)** ***What is the sum of its first and 20 th terms ?*** **c)** ***What is its common difference ?*** **d)** ***What is its first term ?***
116	***The sum of first 3 terms of an arithmetic sequence is 33 and the sum of first 8 terms is 208 .*** **a)** ***What is its second term ?*** **b)** ***What is the sum of its second and 7 th terms ?*** **c)** ***What is its common difference ?*** **d)** ***What is its algebraic form ?***
117	***The sum of first 5 terms of an arithmetic sequence is 105 and the sum of first 10 terms is 410 .*** **a)** ***What is its third term ?*** **b)** ***What is the sum of its third and 8 th terms ?*** **c)** ***What is its common difference ?*** **d)** ***What is its algebraic form ?***
118	***The sum of first 9 terms of an arithmetic sequence is 108 and the sum of first 16 terms is 304 .*** **a)** ***What is its 5 th term ?*** **b)** ***What is the sum of its 5 th and 12 th terms ?*** **c)** ***What is its common difference ?*** **d)** ***What is its algebraic form ?***

119	*The sum of* 8 th *and* 9 th *terms of an arithmetic sequence is 40 .* a) *What is the sum of its first and* 16 th *terms ?* b) *What is the sum of first* 16 *terms of this sequence ?*
120	*The sum of* 10 th *and* 11 th *terms of an arithmetic sequence is* 65 . a) *What is the sum of its first and* 20 th *terms ?* b) *What is the sum of first* 20 *terms of this sequence ?*
121	*The sum of* 2 nd *and* 11 th *terms of an arithmetic sequence is* 67 . a) *What is the sum of its first and* 12 th *terms ?* b) *What is the sum of first* 12 *terms of this sequence ?*
122	*The sum of* 3 rd *and* 16 th *terms of an arithmetic sequence is* 70 . a) *What is the sum of its first and* 18 th *terms ?* b) *What is the sum of first* 18 *terms of this sequence ?*
123	*The sum of* 6th *and* 7th *terms of an arithmetic sequence is* 43 a) *What is the sum of its first and* 12th *terms ?* b) *What is the sum of first* 12 *terms of this sequence ?* c) *If the* 3rd *term of this sequence is* 11 *, what is its* 10th *term ?* d) *What is its common difference ?* e) *What is its algebraic form ?*
124	*The sum of* 10 th *and* 11 th *terms of an arithmetic sequence is* 90 a) *What is the sum of its first and* 20th *terms ?* b) *What is the sum of first* 20 *terms of this sequence ?* c) *If the* 8 th *term of this sequence is* 35 *, what is its* 13th *term ?* d) *What is its common difference ?* e) *What is its algebraic form ?*

125	*The sum of* 8 th *and* 9 th *terms of an arithmetic sequence is* 32 a) *What is the sum of its first and* 16 th *terms* ? b) *What is the sum of first* 16 *terms of this sequence* ? c) *If the* 11 th *term of this sequence is* 21 *, what is its* 6 th *term* ? d) *What is its common difference* ? e) *What is its algebraic form* ?
126	*The sum of* 5 th *and* 6 th *terms of an arithmetic sequence is* 62 a) *What is the sum of its first and* 10 th *terms* ? b) *What is the sum of first* 10 *terms of this sequence* ? c) *If the* 9 th *term of this sequence is* 52 *, what is its* 2 nd *term* ? d) *What is its common difference* ? e) *What is its algebraic form* ?
127	*Consider the arithmetic sequence* 5 , 8 , 11 , ... a) *What is its common difference* ? b) *How many times of the common difference is the difference between* 31st *and first terms of this sequence ?* c) *What is the difference between its* 60th *and* 30th *terms* ? d) *What is the difference between the sum of first* 30 *terms and the sum of next* 30 *terms ?*
128	*Consider the arithmetic sequence* 7 , 11 , 15 , ... a) *What is its common difference* ? b) *How many times of the common difference is the difference between* 21st *and first terms of this sequence ?* c) *What is the difference between its* 40th *and* 20th *terms* ? d) *What is the difference between the sum of first* 20 *terms and the sum of next* 20 *terms ?*

129	*Consider the arithmetic sequence* 8 , 14 , 20 , ... a) *What is its common difference* ? b) *How many times of the common difference is the difference between* 16 th *and first terms of this sequence ?* c) *What is the difference between its* 30^{th} *and* 15^{th} *terms* ? d) *What is the difference between the sum of first* 15 *terms and the sum of next* 15 *terms ?*
130	*The sum of first 13 terms of an arithmetic sequence and the sum of next 12 terms are equal . If its common difference is* 4 , a) *How many times of the common difference is the difference between* 14 th *and first terms of this sequence ?* b) *What is the difference between its* 25 th *and* 12 th *terms* ? c) *What is its* 13^{th} *term* ? d) *What is the sum of first* 25 *terms of this sequence* ?
131	*The sum of first* 10 *terms of an arithmetic sequence and the sum of next* 9 *terms are equal . If its common difference is* 2 , a) *How many times of the common difference is the difference between* 11 th *and first terms of this sequence ?* b) *What is the difference between its* 19 th *and* 9 th *terms* ? c) *What is its* 10 th *term* ? d) *What is the sum of first* 19 *terms of this sequence* ?
132	*The sum of first* 8 *terms of an arithmetic sequence and the sum of next* 7 *terms are equal . If its common difference is* 5 , a) *How many times of the common difference is the difference between* 9 th *and first terms of this sequence ?*

	b) ***What is the difference between its*** **15** **th** ***and*** **7** **th** ***terms*** **?** **c)** ***What is its*** **8** **th** ***term*** **?** **d)** ***What is the sum of first*** **15** ***terms of this sequence*** **?**
133	***The angles of a quadrilateral are in arithmetic sequence . The smallest angle is*** **30^0 .** **a)** ***What is the sum of the angles of a quadrilateral*** **?** **b)** ***What is the measure of the largest angle*** **?** **c)** ***What is the common difference of the sequence*** **?** **d)** ***What are the measures of other angles*** **?**
134	***The angles of a hexagon are in arithmetic sequence . The smallest angle is*** **80^0 .** **a)** ***What is the sum of the angles of a hexagon*** **?** **b)** ***What is the measure of the largest angle*** **?** **c)** ***What is the common difference of the sequence*** **?** **d)** ***What are the measures of other angles*** **?**
135	***The angles of a pentagon are in arithmetic sequence . The smallest angle is*** **40^0 .** **a)** ***What is the sum of the angles of a pentagon*** **?** **b)** ***If the angles are written as arithmetic sequence , what will be its third term*** **?** **c)** ***What is the common difference of the sequence*** **?** **d)** ***What is the measure of the largest angle*** **?**

WANDOOR GANITHAM – S.S.L.C STUDY MATERIAL 2021

FOCUS AREA - QUESTION BANK - CIRCLES

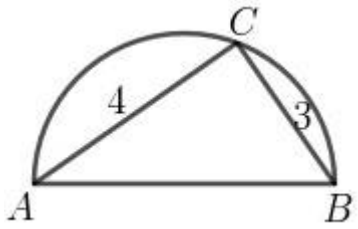
1

In the figure AB is the diameter of the circle .

AC = 4 *cm* , BC = 3 *cm*

a) ***What is the measure of*** **< *ACB* ?**

b) ***What is the length of AB*** **?**



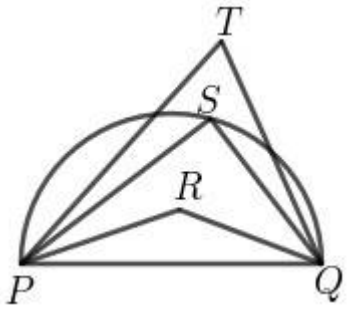
2

In the figure PQ is the diameter of the semicircle .

The measures of **< *R* , < *S* , < *T* *are in arithmetic sequence* . < *T* = 60 ^{0}**

a) ***What is the measure of*** **< *S* ?**

b) ***What is the measure of*** **< *R* ?**



3

< ABC = 75 ^{0} , < ADC = 90 ^{0} , <AEC = 105 ^{0} . ***A circle is drawn with AC as diameter.***

a) ***The position of D is .....***

(*inside the circle , outside the circle , on the circle*)

b) ***The position of B is .....***

(*inside the circle , outside the circle , on the circle*)

c) ***The position of E is .....***

(*inside the circle , outside the circle , on the circle*)

4

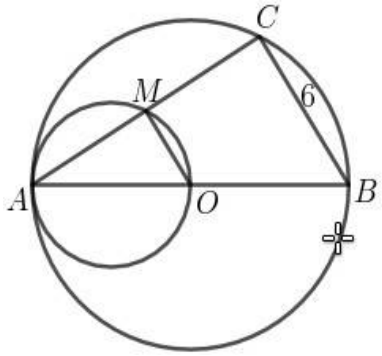
In the figure O is the centre of the larger circle .

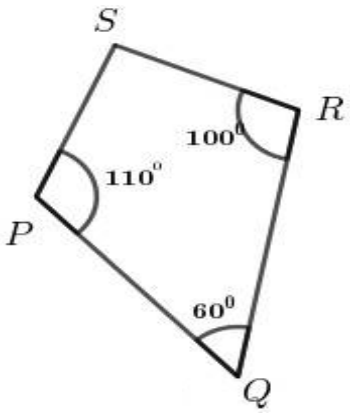
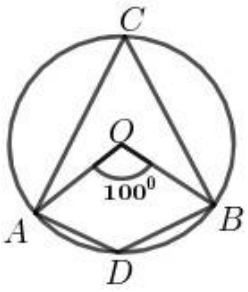
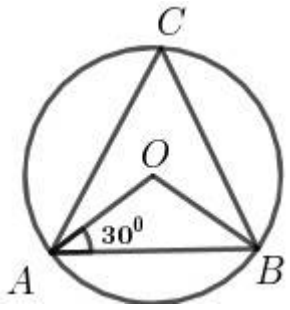
OA is the diameter of the smaller circle . **AB = 10 *cm***

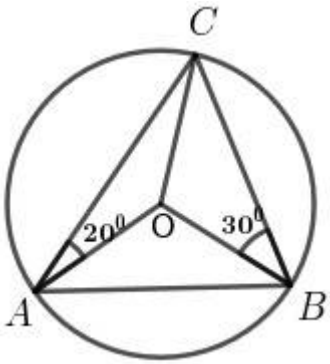
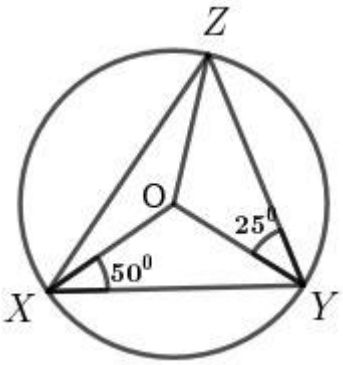
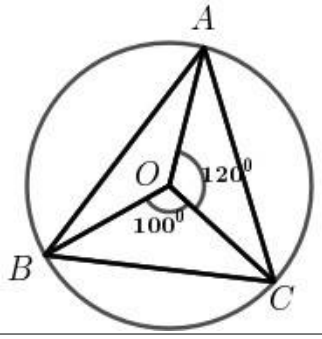
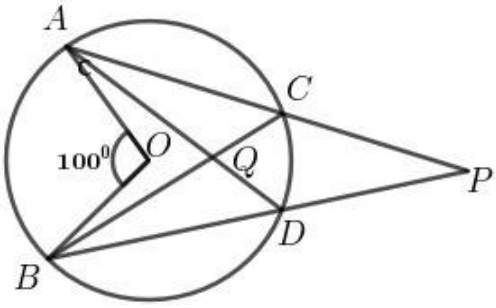
BC **= 6 *cm***

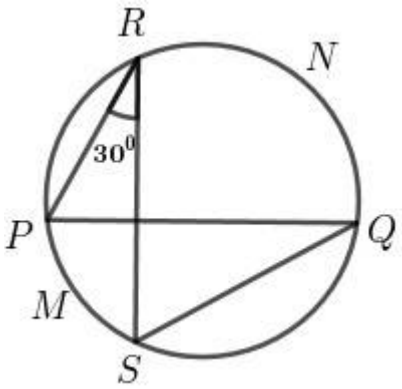
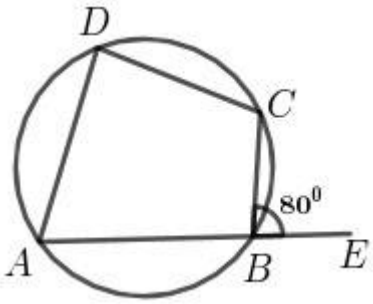
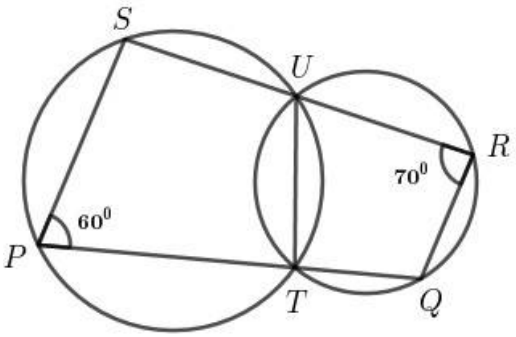
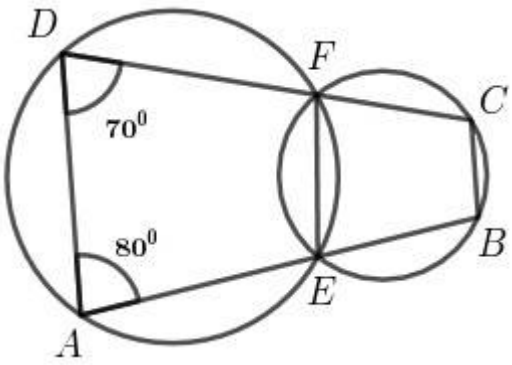
a) ***What is the measure of*** **< *ACB* ?**

b) ***What is the measure of*** **< *AMO* ?**

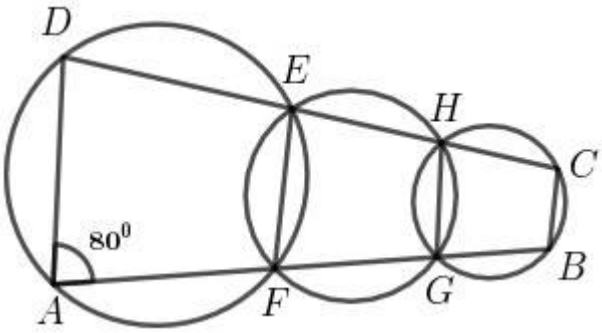


	c) ***What is the length of AM ?*** **d)** ***What is the perimeter of the triangle AMO ?***
5	***In the figure*** $< P = 110^0$, $< Q = 60^0$, $< R = 100^0$ **a)** ***What is the measure of*** $< S$? **b)** ***The position of S if a circle is drawn with PR as diameter is .....*** **(*inside the circle , outside the circle , on the circle*)** **c)** ***The position of Q if a circle is drawn with PR as diameter is .....*** **(*inside the circle , outside the circle , on the circle*)** 
6	***In the figure O is the centre of the circle .*** $< AOB = 100^0$ **a)** ***What is the measure of*** $< ACB$? **b)** ***What is the measure of*** $< ADB$? 
7	***In the figure O is the centre of the circle . OP = PQ*** **a)** ***What is the measure of*** $< POQ$? **b)** ***What is the measure of*** $< PRQ$? 
8	***In the figure O is the centre of the circle .*** $< OAB = 30^0$ **a)** ***What is the measure of*** $< ABO$? **b)** ***What is the measure of*** $< AOB$? **c)** ***What is the measure of*** $< ACB$? 

9	***In the figure O is the centre of the circle . < LNM = 30 ^{0}*** **a) *What is the measure of < LOM ?*** **b) *What is the measure of < OLM ?*** **c) *Prove that LOM is an equilateral triangle ?*** 
10	***In the figure O is the centre of the circle . < OAC = 20 ^{0} ,*** ***< OBC = 30 ^{0}*** **a) *What is the measure of < ACO ?*** **b) *What is the measure of < AOB ?*** **c) *What is the measure of < OAB ?*** 
11	***In the figure O is the centre of the circle . < OXY = 50 ^{0} ,*** ***< OYZ = 25 ^{0}*** **a) *What is the measure of < OYX ?*** **b) *What is the measure of < XOY ?*** **c) *What is the measure of < XZY ?*** **d) *What is the measure of < OXZ ?*** 
12	***In the figure O is the centre of the circle . < BOC = 100 ^{0}*** ***< AOC = 120 ^{0}*** **a) *What is the measure of < BAC ?*** **b) *What is the measure of < ACB ?*** 
13	***In the figure O is the centre of the circle .*** ***< AOB = 100 ^{0}*** **a) *What is the measure of < ACB ?*** **b) *What is the measure of < PDQ ?*** **c) *< CQD + < CPD = ...*** 

14	***In the figure the chords PQ and RS are perpendicular to each other . < PRS = 30 ^{0}*** **a) *What is the measure of* < PQS ?** **b) *What is the central angle of the arc PMS ?*** **c) *What is the sum of the central angles of the arc PMS and RNQ ?*** 
15	***In the figure < CBE = 80 ^{0}*** **a) *What is the measure of < ABC ?*** **b) *What is the measure of < ADC ?*** 
16	***In the figure two circles intersect at T and U .*** ***< P = 60 ^{0} , < R = 70 ^{0}*** **a) *What is the measure of < SUT ?*** **b) *What is the measure of < TQR ?*** **c) *What is the measure of < PTU ?*** **d) *What is the measure of < S ?*** 
17	***In the figure two circles intersect at E and F*** ***< A = 80 ^{0} , < D = 70 ^{0}*** **a) *What is the measure of < DFE ?*** **b) *What is the measure of < CBE ?*** **c) *What is the measure of < BEF ?*** **d) *What is the measure of < C ?*** 

18 *In the figure* $< A = 80^0$



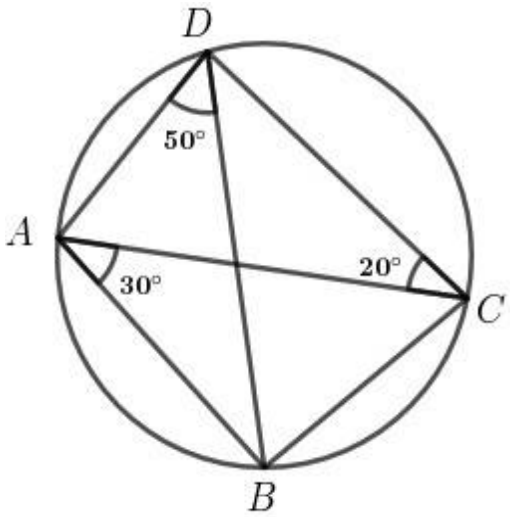
a) *What is the measure of* $< DEF$?

b) *What is the measure of* $< HGF$?

c) *What is the measure of* $< C$?

d) *Give a most suitable name for the quadrilateral* $ABCD$?

19 *In the figure* $< BAC = 30^0$, $< ADB = 50^0$, $< ACD = 20^0$.



a) *What is the measure of* $< ACB$?

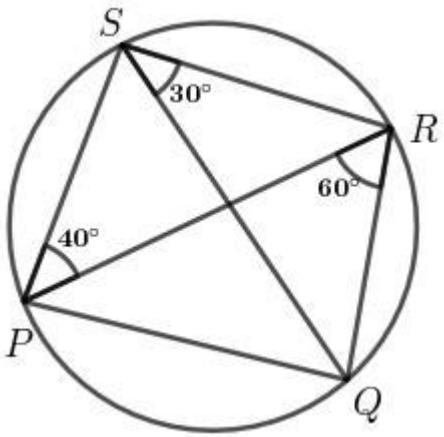
b) *What is the measure of* $< BDC$?

c) *What is the measure of* $< ABD$?

d) *What is the measure of* $< DBC$?

e) *What is the measure of* $< CAD$?

20 *In the figure* $< PRQ = 60^0$, $< QSR = 30^0$, $< RPS = 40^0$



a) *What is the measure of* $< PSQ$?

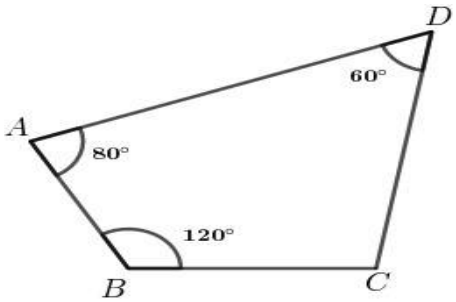
b) *What is the measure of* $< QPR$?

c) *What is the measure of* $< SQR$?

d) *What is the measure of* $< PQS$?

e) *What is the measure of* $< PRS$?

21 *In the figure* $< A = 80^0$, $< B = 120^0$, $< D = 60^0$



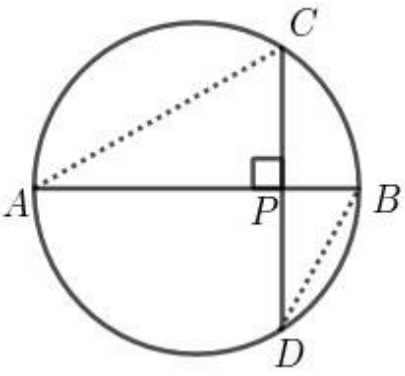
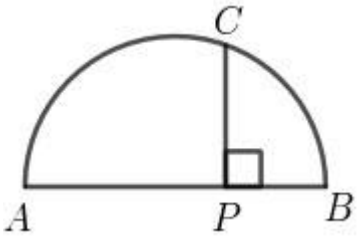
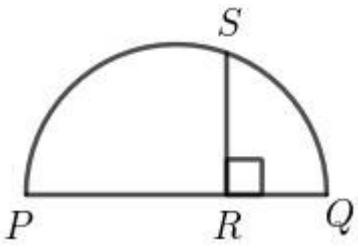
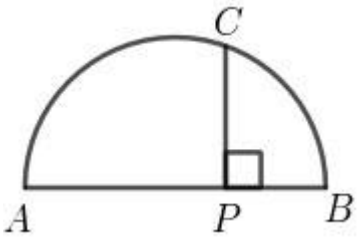
a) *What is the measure of* $< C$?

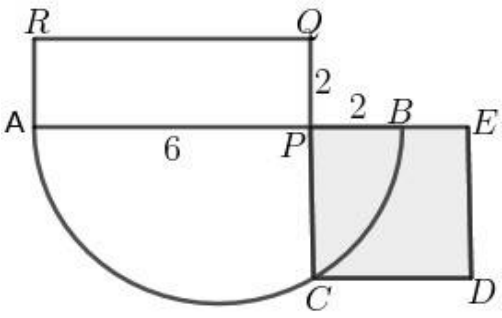
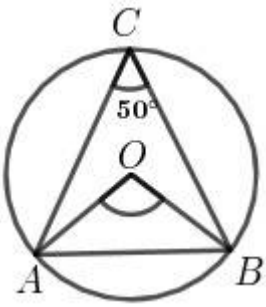
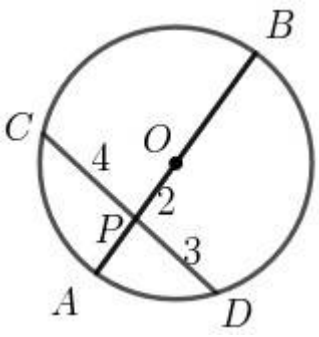
b) *The position of the vertex C if a circle is drawn through the vertices A , B and D is .....*

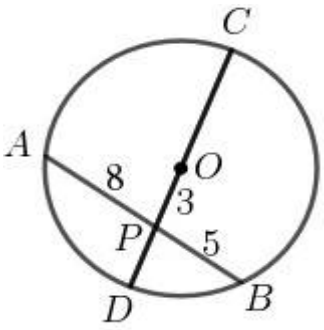
(inside the circle , outside the circle , on the circle)

22	*In the figure* $< K = 90^0$, $< L = 130^0$, $< N = 80^0$ **a)** *What is the measure of* $< M$? **b)** *The position of the vertex M if a circle is drawn through the vertices K, L and N is .....* (*inside the circle , outside the circle , on the circle*) **c)** *The position of the vertex N if a circle is drawn through the vertices K, L and M is .....* (*inside the circle , outside the circle , on the circle*)
23	*In the figure two chords AB and CD intersect at P .* **a)** *Which other angle is equal to the measure of* $< CAB$? **b)** *Which other angle is equal to the measure of* $< ABD$? **c)** *Prove that* $PA \times PB = PC \times PD$?
24	*In the figure two chords AB and CD intersect at P .* $PA = 5\ cm$, $AB = 9\ cm$, $PD = 10\ cm$ **a)** *What is the length of BP* ? **b)** $PC \times PD$ = ... **c)** *What is the length of CD* ?
25	*In the figure two chords PQ and RS intersect at T .* $RS = 13\ cm$, $TR = 4\ cm$. *T is the midpoint of PQ.* **a)** *What is the length of TS* ? **b)** $TP \times TQ$ = ... **c)** *What is the length of PQ* ?

26	***In the figure two chords AB and CD intersect at P .*** ***EF = 11 cm , EP = 2 cm . The length of PC is double the length of PD .*** **a)** ***What is the length of PF ?*** **b)** ***PC x PD = ...*** **c)** ***What is the length of CD ?***
27	***In the figure , chords AB and CD are extended to meet at P .*** **a)** ***If < C = 60^0 , what is the measure of < ABD ?*** **b)** ***Prove that the angles of triangles APC and BPD are same ?*** **c)** ***Prove that PA x PB = PC x PD ?***
28	***In the figure , chords AB and CD are extended to meet at P .*** ***PA = 10 cm , AB = 6 cm , PD = 5 cm .*** **a)** ***What is the length of BP ?*** **b)** ***PC x PD = ...*** **c)** ***What is the length of CD ?***
29	***In the figure , chords PQ and RS are extended to meet at T . RT = 18 cm , RS = 14 cm .*** ***Q is the midpoint of PT .*** **a)** ***What is the length of TS ?*** **b)** ***TP x TQ =*** **c)** ***What is the length of PQ ?***

30	***In the figure AB is the diameter of the circle .*** ***P is a point on AB . CD is a chord perpendicular to AB through P .*** **a)** ***Which other angle is equal to the measure of < ACD ?*** **b)** ***Prove that PA x PB = PC x PD ?*** **c)** ***Which other line has the same length as that of PC ?*** **d)** ***Prove that PA x PB = PC^2 ?*** 
31	***In the figure AB is the diameter of the semicircle .*** ***P is a point on AB . The perpendicular drawn through P to AB meets the semicircle at C . AB = 10 cm , PA = 8 cm*** **a)** ***What is the length of PB ?*** **b)** ***PA x PB = ...*** **c)** ***What is the length of PC ?*** 
32	***In the figure PQ is the diameter of the semicircle .*** ***R is a point on PQ . The perpendicular drawn through R to PQ meets the semicircle at S. RS = 6 cm , RQ = 4 cm*** **a)** ***RP x RQ = ...*** **b)** ***What is the length of PQ ?*** 
33	***In the figure AB is the diameter of the semicircle .*** ***P is a point on AB . The perpendicular drawn through P to AB meets the semicircle at C .*** **a)** ***If PA = 5 cm and PB = 3 cm ,what is the length of PC ?*** **b)** ***Draw a square of area 15 square centimetres ?*** 

34	*In the figure PA = 6 cm , PB = PQ = 2 cm* **a)** *What is the area of the square PCDE ?* **b)** *Draw a square of area* 12 *square centimetres ?* 
35	*In the figure O is the centre of the circumcircle of triangle ABC .* $< C = 50^0$ **a)** *What is the measure of* $< AOB$? **b)** *Draw a triangle of circumradius* 3 *cm and two of the angles* 50^0 *and* 60^0 ? 
36	*Draw a triangle of circumradius* 5 *cm and two of the angles* 70^0 *and* 80^0 .
37	*Draw a triangle of circumradius 4 cm and two of the angles* 45^0 *and* 65^0 .
38	*Draw a triangle of circumradius 3.5 cm and two of the angles* 55^0 *and* 75^0 .
39	*Draw a rectangle of width* 6 *cm and height* 4 *cm . Draw a square of the same area .*
40	*Draw a rectangle of width* 7 *cm and height* 2 *cm . Draw a square of the same area .*
41	*Draw a rectangle of width* 5 *cm and height* 4 *cm . Draw a square of the same area .*
42	*In the figure O is the centre of the circle . Chords AB and CD are intersect at P .* *PC = 4 cm , PD = 3 cm , PO = 2 cm .* **a)** *If the radius of the circle is taken as* r *, what is the length of PA ?* **b)** *PA x PB = ...* **c)** *What is the radius of the circle ?* 

43	***In the figure O is the centre of the circle . Chords AB and CD are intersect at P .*** ***PA = 8 cm , PB = 5 cm , PO = 3 cm .*** **a)** ***If the radius of the circle is taken as r , what is the length of PC ?*** **b)** ***PC x PD = ...*** **c)** ***What is the radius of the circle ?***	

WANDOOR GANITHAM – S.S.L.C STUDY MATERIAL 2021

FOCUS AREA - QUESTION BANK - MATHEMATICS OF CHANCE

1	*A coin is tossed .* a) *What is the the probability of getting a head ?* b) *What is the the probability of not getting a head ?*
2	*In a class there are* 30 *boys and* 20 *girls . One student is to be selected as leader .* a) *What is the probability that the class leader will be a girl ?* b) *What is the probability that the class leader will not be a girl ?*
3	*Each letter of the word " MALAYALAM " is written on paper slips and put in a box . A slip is to be drawn from it .* a) *What is the probability of getting the letter A ?* b) *What is the probability of not getting the letter A ?*
4	*In a class there are* 25 *boys and* 35 *girls . One student is to be selected as leader .* a) *What is the probability that the class leader will be a boy ?* b) *What is the probability that the class leader will not be a boy ?* c) *What is the probability that the class leader will be a boy if 5 girls are absent ?*
5	*A bag contains* 6 *white and* 9 *blue balls . In another box there are* 8 *white and* 12 *blue balls . Take one ball from this* a) *What is the probability of getting a white ball from the first bag ?* b) *What is the probability of getting a white ball from the second bag ?* c)*If all the balls are put in a single bag ,what is the probability of getting a white ball from it ?*

6	***Numbers from* 1 *to* 10 *are written on slips of paper and put in a box . A slip is to be drawn from it .*** **a)** ***What is the probability that the number written in it is an even number*** **?** **b)** ***What is the probability that the number written in it is an odd number*** **?** **c)** ***What is the probability that the number written in it is a prime number*** **?**
7	***Numbers from* 1 *to* 20 *are written on slips of paper and put in a box . A slip is to be drawn from it .*** **a)** ***What is the probability that the number written in it is a multiple of*** **2 ?** **b)** ***What is the probability that the number written in it is a multiple of*** **3 ?** **c)** ***What is the probability that the number written in it is a multiple of*** **6 ?**
8	***Numbers from* 1 *to* 25 *are written on slips of paper and put in a box . A slip is to be drawn from it .*** **a)** ***What is the probability that the number written in it is an even number*** **?** **b)** ***What is the probability that the number written in it is an odd number*** **?** **c)** ***What is the probability that the number written in it is a perfect square*** **?**
9	***A bag contains* 10 *red and* 8 *blue balls . Take one ball from this .*** **a)** ***What is the probability of getting a red ball*** **?** **b)** ***What is the probability of getting a blue ball*** **?**
10	***A box contains* 20 *apples and* 30 *oranges . Take one from this .*** **a)** ***What is the probability of getting an apple*** **?** **b)** ***What is the probability of getting an orange*** **?** **c)** ***If* 10 *more apples are put in the box , What is the probability of getting an orange*** **?**

11	*A bag contains* **15** *white and* **25** *green beads . Take one bead from this* **a)** *What is the probability of getting a green bead* **?** **b)** *What is the probability of getting a white bead* **?** **c)** *How many more white beads are to be put in the box to make the probability of getting a green bead is* $\frac{1}{2}$ **?**
12	*A bag contains* **40** *mangoes and some oranges . Take one from this . The probability of getting a mango is* $\frac{4}{7}$ **.** **a)** *How many fruits are there in the box* **?** **b)** *What is the probability of getting an orange* **?** **c)** *If* **15** *mangoes are taken out from the box , what will be the probability of getting an orange* **?**
13	*A bag contains* **15** *red and some green beads . Take one bead from this .* *The probability of getting a blue bead is* $\frac{4}{9}$ **.** **a)** *What is the probability of getting a red bead* **?** **b)** *How many blue beads are there in the bag* **?** **c)** *If* **3** *more red beads are put in the bag , what is the probability of getting a blue beard* **?**
14	*A box contains* **90** *beads , some black and some yellow . Take one bead from this .* *The probability of getting a yellow bead is* $\frac{2}{3}$ **.** **a)** *How many yellow beads are there in the box* **?** **b)** *What is the probability of getting a black bead* **?** **c)** *If* **10** *yellow beads are taken out from the bag , what is the probability of getting a black beard* **?**

15	***A box contains 50 fruits , some apples and some oranges .Take one from this .*** ***The probability of getting an orange is*** $\frac{7}{10}$ **.** **a)** ***How many oranges are there in the box ?*** **b)** ***What is the probability of getting an apple ?*** **c)** ***How many more apples are to be put to the box to make the probability of getting an orange is*** $\frac{5}{9}$ **?**
16	***A dice with faces numbered from 1 to 6 is rolled .*** **a)** ***What is the probability of getting an even number ?*** **b)** ***What is the probability of getting an odd number ?*** **c)** ***What is the probability of getting a perfect square ?***
17	***A dice with faces numbered from 1 to 6 is rolled .*** **a)** ***What is the probability of getting an even number ?*** **b)** ***What is the probability of getting an odd number ?*** **c)** ***What is the probability of getting a prime number ?***
18	***One is asked to say a two -digit number .*** **a)** ***How many two digit numbers are there ?*** **b)** ***What is the probability of both digits being the same ?*** **c)** ***What is the probability of both digits being not same ?***
19	***One is asked to say a two -digit number .*** **a)** ***How many two digit numbers are there ?*** **b)** ***What is the probability of getting a multiple of* 10 ?** **c)** ***What is the probability of getting a multiple of* 11 ?**

20	***One is asked to say a two -digit number .*** **a)** ***How many two digit numbers are there ?*** **b)** ***What is the probability of getting a multiple of 5 ?*** **c)** ***What is the probability of getting a multiple of 10 ?*** **d)** ***What is the probability of one of the digit being zero and the other being a prime ?***
21	***One is asked to say a two -digit number .*** **a)** ***How many two digit numbers are there ?*** **b)** ***What is the probability of only one of the digits being 1 ?*** **c)** ***What is the probability of the product of the digits being a prime ?***
22	***One is asked to say a two -digit number .*** **a)** ***How many two digit numbers are there ?*** **b)** ***What is the smallest possible sum of the digits ?*** **c)** ***What is the largest possible sum of the digits ?*** **d)** ***What is the probability of the sum of the digits being a prime ?***
23	***One is asked to say a two -digit number .*** **a)** ***How many two digit numbers are there ?*** **b)** ***What is the smallest possible product of the digits ?*** **c)** ***What is the largest possible product of the digits ?*** **d)** ***What is the probability of the product of the digits being a perfect square ?***
24	***One is asked to say a two -digit number .*** **a)** ***How many two digit numbers are there ?*** **b)** ***What is the smallest possible product of the digits ?*** **c)** ***What is the largest possible product of the digits ?*** **d)** ***What is the probability of the product of the digits being a prime ?***

25	***One is asked to say a two -digit number .*** **a)** ***How many two digit numbers are there ?*** **b)** ***What is the probability of the digits being the same ?*** **c)** ***What is the probability of the first digit being larger ?*** **d)** ***What is the probability of the first digit being smaller ?***
26	***One is asked to say a three -digit number .*** **a)** ***How many three digit numbers are there ?*** **b)** ***What is the probability of the digits being the same ?*** **c)** ***What is the probability that only two of the digits being* 1 ?** **d)** ***What is the probability that the product of the digits being a prime ?***
27	***One is asked to say a three -digit number .*** **a)** ***How many three digit numbers are there ?*** **b)** ***What is the probability of getting a multiple of* 100 ?** **c)** ***What is the probability of getting a multiple of* 111 ?**
28	***Consider a leap year .*** **a)** ***How many days are there in a leap year ?*** **b)** ***What is the probability of occurring* 53 *saturdays in a leap year ?*** **c)** ***What is the probability of occurring* 53 *saturdays in a non - leap year ?***
29	**a)** ***How many days are there in the month January ?*** **b)** ***What is the probability of occurring* 5 *sundays in January ?*** **c)** ***What is the probability of occurring* 5 *sundays in February of a leap year ?***

EXTRA QUESTIONS

30	***In class* 10 *A there are* 30 *boys and* 20 *girls . In class* 10 *B there are* 40 *boys and* 30 *girls . One student is to be selected from each class .*** **a)** ***In how many different ways we can select a pair of students , one from each ?*** **b)** ***What is the probability of both being girls ?*** **c)** ***What is the probability of getting one boy and one girl ?*** **d)** ***What is the probability of getting at least one girl ?***
31	***A box contains* 10 *slips numbered from* 1 *to* 10 *and another box contains* 20 *slips numbered from* 1 *to* 20 *. One slip is taken from each box .*** **a)** ***In how many different ways we can select a pair of slips , one from each ?*** **b)** ***What is the probability of both being even ?*** **c)** ***What is the probability of getting an even number and an odd number ?*** **d)** ***What is the probability of getting at least an even number ?***

WANDOOR GANITHAM – S.S.L.C STUDY MATERIAL 2021

FOCUS AREA - QUESTION BANK - SECOND DEGREE EQUATIONS

1	a) *Which number is to be added to* $x^2 + 10x$ *to get a perfect square* ? b) *Find the natural number value of* x *from the equation* $x^2 + 10x = 144$?
2	a) *Which number is to be added to* $x^2 + 16x$ *to get a perfect square* ? b) *Find the natural number value of* x *from the equation* $x^2 + 16x = 225$?
3	a) *Which number is to be added to* $x^2 - 12x$ *to get a perfect square* ? b) *Find the natural number value of* x *from the equation* $x^2 - 12x = 64$?
4	a) *Which number is to be added to* $x^2 - 20x$ *to get a perfect square* ? b) *Find the natural number value of* x *from the equation* $x^2 - 20x = 576$?
5	*When each side of a square was increased by* 4 *metres , the area became* 256 *square - metres .* a) *Write down a second degree equation by taking the side of the original square as* x b) *What was the length of a side of the original square* ?
6	*When each side of a square was decreased by* 6 *metres , the area became* 169 *square - metres .* a) *Write down a second degree equation by taking the side of the original square as* x b) *What was the length of a side of the original square* ?
7	16 *added to the product of two consecutive multiples of* 8 *gives* 784 . a) *Write down a second degree equation by taking the smaller multiple as* x b) *What are the numbers* ?
8	4 *added to the product of two consecutive multiples of* 4 *gives* 676 a) *Write down a second degree equation by taking the smaller multiple as* x b) *What are the numbers ?*

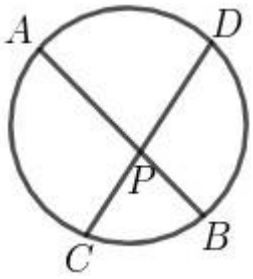
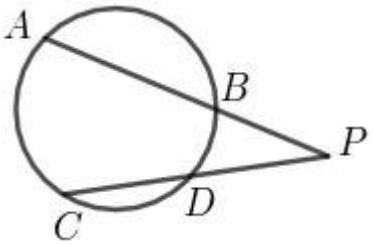
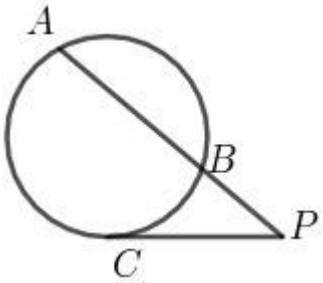
9	**1** *added to the product of two consecutive odd numbers gives* **196 .** **a)** *Write down a second degree equation by taking the smallerd number as* x **b)** *What are the numbers ?*
10	**1** *added to the product of two consecutive odd numbers gives* **225 .** **a)** *Write down a second degree equation by taking the smaller number as* x **b)** *What are the numbers ?*
11	*The product of two consecutive multiples of* **6** *is* **432 .** **a)** *Write down a second degree equation by taking the smaller multiple as* x **b)** *What are the numbers ?*
12	*The product of two consecutive multiples of* **8** *is* **768 .** **a)** *Write down a second degree equation by taking the smaller multiple as* x **b)** *What are the numbers ?*
13	*The product of two consecutive terms of an arithmetic sequence with common difference* **4** *is* **221 .** **a)** *Write down a second degree equation by taking one of the consecutive term as* x **b)** *What are the terms ?*
14	*The sum of the square of a number and* **6** *times that number is* **160 .** **a)** *Write down a second degree equation by taking the number as* x **b)** *What is the number ?*
15	*The sum of the square of a number and* **10** *times that number is* **1575 .** **a)** *Write down a second degree equation by taking the number as* x **b)** *What is the number ?*

16	**18** ***times a number subtracted from the square of that number gives*** **40 .** **a)** ***Write down a second degree equation by taking the number as*** x **b)** ***What is the number ?***
17	**12** ***times a number subtracted from the square of that number gives*** **2464 .** **a)** ***Write down a second degree equation by taking the number as*** x **b)** ***What is the number ?***
18	***The product of a number and*** **8** ***more than that number is*** **345 .** **a)** ***Write down a second degree equation by taking the number as*** x **b)** ***What is the number ?***
19	***The product of a number and*** **14** ***less than that number is*** **275 .** **a)** ***Write down a second degree equation by taking the number as*** x **b)** ***What is the number ?***
20	***The longer side of a rectangle is*** **4** ***centimetres more than its shorter side . The area of the rectangle is*** **672** ***square centimetres .*** **a)** ***Write down a second degree equation by taking the shorter side as*** x **b)** ***What are the lengths of its the sides*** **?**
21	***The shorter side of a rectangle is*** **2** ***centimetres less than its longer side . The area of the rectangle is*** **288** ***square centimetres .*** **a)** ***Write down a second degree equation by taking the longer side as*** x **b)** ***What are the lengths of its the sides*** **?**
22	***The perimeter of a rectangle is*** **24** ***centimetres and its area is*** **32** ***square centimetres .*** **a)** ***What is the sum of the lengths of the longer and the shorter sides of the rectangle*** **?** **b)** ***Write down a second degree equation by taking the length of the longer side as*** $6 + x$ **c)** ***What are the lengths of its the sides*** **?**

23	*The perimeter of a rectangle is* 32 *centimetres and its area is* 63 *square centimetres .* a) *What is the sum of the lengths of the longer and the shorter sides of the rectangle ?* b)*Write down a second degree equation by taking the length of the shorter side as* $8 - x$ c) *What are the lengths of its the sides ?*
24	*The longer side of a rectangle is* 6 *centimetres more than its shorter side . The diagonal of the rectangle is* 30 *centimetres .* a) *Write down a second degree equation by taking the shorter side as* x b) *What are the lengths of its the sides ?*
25	*The shorter side of a rectangle is* 14 *centimetres less than its longer side .The diagonal of the rectangle is* 26 *centimetres .* a) *Write down a second degree equation by taking the longer side as* x b) *What are the lengths of its the sides ?*
26	*The product of two consecutive multiples of* 3 *is* 270 . a) *Write down a second degree equation by taking the smaller multiple as* x b) *What are the numbers ?*
27	*The product of a number and* 7 *more than that number is* 228 . a) *Write down a second degree equation by taking the number as* x b) *What is the number ?*
28	*The longer side of a rectangle is* 9 *centimetres more than its shorter side . The area of the rectangle is* 136 *square centimetres .* a) *Write down a second degree equation by taking the shorter side as* x b) *What are the lengths of its the sides ?*
29	*The perimeter of a rectangle is* 28 *centimetres and its diagonal is* 10 *centimetres .* a) *What is the sum of the lengths of the longer and the shorter sides of the rectangle ?* b)*Write down a second degree equation by taking the length of the longer side as* $7 + x$ c) *What are the lengths of its the sides ?*

30	***The perimeter of a rectangle is 68 centimetres and its diagonal is 26 centimetres .*** **a)** ***What is the sum of the lengths of the longer and the shorter sides of the rectangle ?*** **b)** ***Write down a second degree equation by taking the length of the shorter side as*** $17 - x$ **c)** ***What are the lengths of its the sides ?***

EXTRA QUESTIONS

31	***In the figure two chords AB and CD intersect at P*** ***PA = 16 cm , PB = 6 cm . The length of PD is 4 cm more than that of PC .***  **a)** ***PC x PD = ...*** **b)** ***Write down a second degree equation by taking the length of PC as*** x . **c)** ***What is the length of CD ?***
32	***In the figure chords AB and CD of the circles are extended to meet at P . PA = 24 cm , AB = 18 cm .*** ***The length of PC is 10 cm more than that of PD .***  **a)** ***What is the length of PB ?*** **b)** ***PC x PD = ...*** **c)** ***Write down a second degree equation by taking the length of PD as*** x . **d)** ***What is the length of CD ?***
33	***In the figure chord AB of the circles is extended to meet the tangent through C at P . PC = 8 cm*** ***The length of PA is 12 cm more than that of PB .***  **a)** ***PA x PB = ...*** **b)** ***Write down a second degree equation by taking the length of PB as*** x . **c)** ***What is the length of AB ?***

WANDOOR GANITHAM – S.S.L.C STUDY MATERIAL 2021

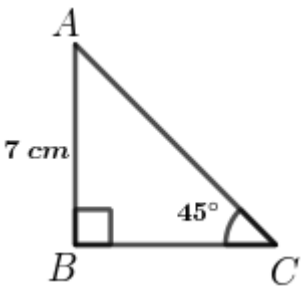
FOCUS AREA - QUESTION BANK - TRIGNOMETRY

1 ***In the figure*** $\angle B=90^o, \angle C=45^o, AB=7\,cm$.

a) ***What is the measure of*** $\angle A$ **?**

b) ***What is the length of*** BC **?**

c) ***What is the perimeter of the triangle*** ABC **?**

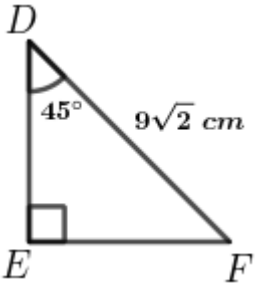


2 ***In the figure*** $\angle E=90^o, \angle D=45^o, DF=9\sqrt{2}\,cm$.

a) ***What is the measure of*** $\angle F$ **?**

b) ***What is the length of*** EF **?**

c) ***What is the area of the triangle*** DEF **?**

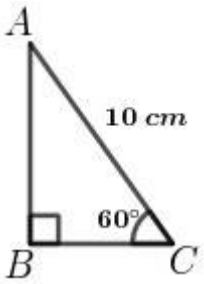


3 ***In the figure*** $\angle B=90^o, \angle C=60^o, AC=10\,cm$.

a) What is the measure of $\angle A$ ***?***

b) What is the length of BC ***?***

c) What is the perimeter of the triangle ABC ***?***

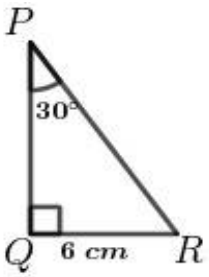


4 ***In the figure*** $\angle Q=90^o, \angle P=30^o, QR=6\,cm$.

a) ***What is the measure of*** $\angle R$ **?**

b) ***What is the length of*** PR **?**

c) ***What is the perimeter of the triangle*** PQR **?**

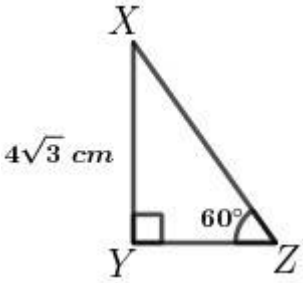


5 ***In the figure*** $\angle Y=90^o, \angle Z=60^o, XY=4\sqrt{3}\,cm$.

a) ***What is the measure of*** $\angle X$ **?**

b) ***What is the length of*** YZ **?**

c) ***What is the perimeter of the triangle*** XYZ **?**



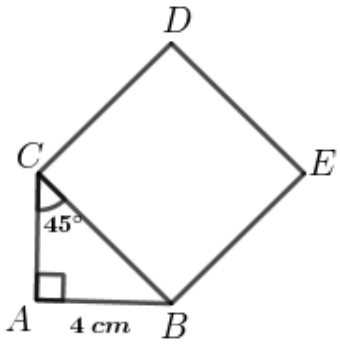
6

In the figure $< A = 90^0, < ACB = 45^0, AB = 4\,cm$.

a) What is the measure of $< ABC$ ***?***

b) What is the length of AC ***?***

c) What is the perimeter of the square $BCDE$ ***?***



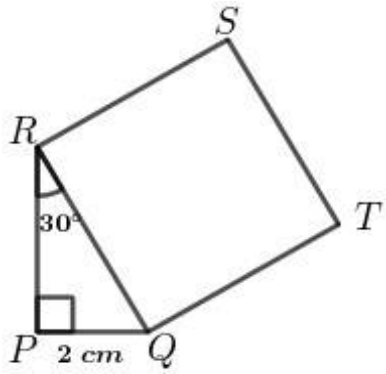
7

In the figure $< P = 90^0, < PRQ = 30^0, PQ = 2\,cm$.

a) *What is the measure of* $< PQR$ **?**

b) *What is the length of* PR **?**

c) *What is the area of the square* $QRST$ **?**



8

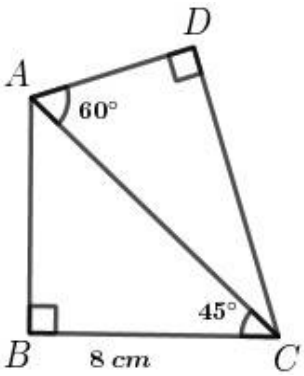
In the figure $BC = 8\,cm, < B = < D = 90^0, < ACB = 45^0, < CAD = 60^0$

a) What is the measure of $< BAC$ ***?***

b) What is the length of AC ***?***

c) What is the area of triangle ADC ***?***

d) What is the perimeter of quadrilateral $ABCD$ ***?***



9

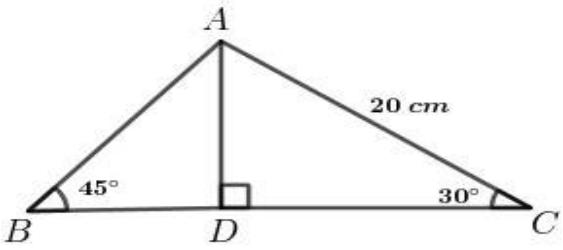
In the figure $AC = 20\,cm, < B = 45^0, < C = 30^0$

The line AD is perpendicular to the side BC .

a) What is the measure of $< BAC$ ***?***

b) What is the length of AD ***?***

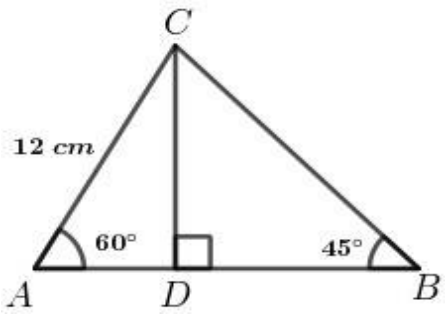
c) What is the perimeter of triangle ABC ***?***



d)*What is the ratio of the length of the sides if the ratio of angles of a triangle is* 2:3:7 ?

10 ***In the figure*** $AC=12\,cm, <A=60^0, <B=45^0$

The line CD ***is perpendicular to the side*** AB **.**



a) What is the measure of $<ACB$ ***?***

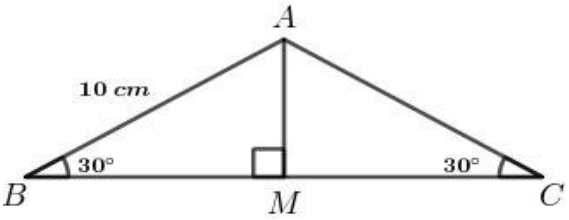
b) What is the length of CD ***?***

c) What is the area of triangle ABC ***?***

d) What is the ratio of the length of the sides if the ratio of angles of a triangle is **3:4:5 ?**

11 ***In the figure*** $BC=10\,cm, <B=<C=30^0$

The line AM ***is perpendicular to the side*** BC



a) What is the measure of $<BAM$ ***?***

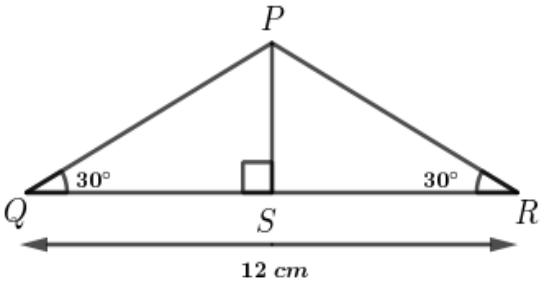
b) What is the length of AM ***?***

c) What is the area of triangle ABC ***?***

d) ***What is the ratio of the length of the sides if the ratio of angles of a triangle is*** **1:1:4 ?**

12 ***In the figure*** $QR=12\,cm, <Q=<R=30^0$

The line PS ***is perpendicular to the side*** QR



a) ***What is the measure of*** $<QPS$ ***?***

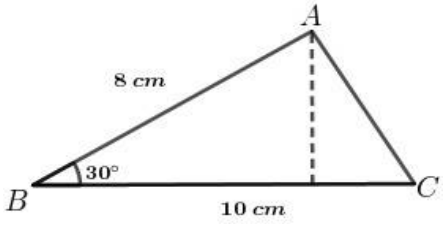
b) ***What is the length of*** QS ***?***

c) What is the area of triangle PQR ***?***

d) What is the ratio of the length of the sides of triangle PQR ***?***

13 ***In the figure*** $<B=30^\circ, AB=8\,cm, BC=10\,cm$

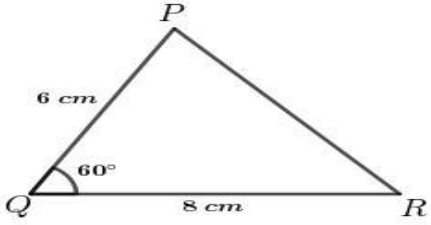
a) ***What is the perpendicular distance from A to the side BC ?***



c) What is the area of the triangle ?

14 ***In the figure*** $<Q=60^\circ, PQ=6\,cm, QR=8\,cm$

b) ***What is the perpendicular distance from P to the side QR ?***



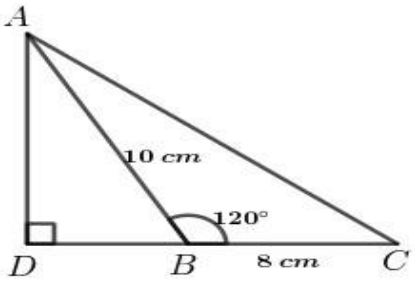
c) ***What is the area of the triangle ?***

15 ***In the figure*** $<B=120^0, <D=90^0, AB=10\,cm, BC=8\,cm$

a) What is the measure of $<ABD$ ***?***

b) What is the length of AD ***?***

c) What is the area of triangle ABC ***?***

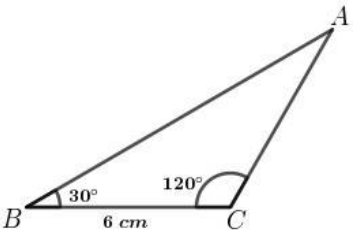


16 ***In triangle*** ABC **,** $<B=30^\circ, <C=120^\circ, BC=6\,cm$

a) What is the measure of $<A$ ***?***

b) *What is the perpendicular distance from A to the side BC ?*

c) What is the area of the triangle ?

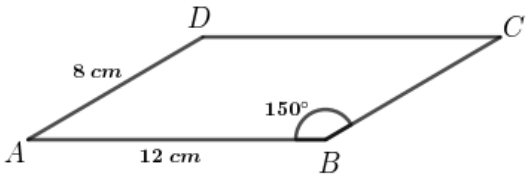


17 ***In parallelogram*** $ABCD$ **,**
$AB=12\,cm, AD=8\,cm, <B=150^0$

a) What is the measure of $<A$ ***?***

b) What is the distance from D ***to the side*** AB ***?***

c) What is the area of the parallelogram ?



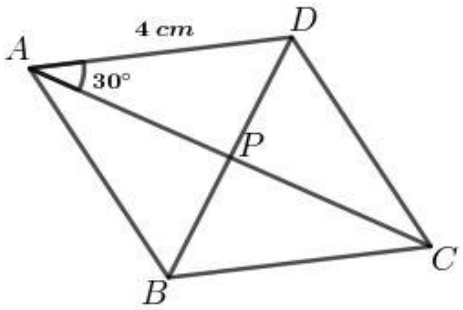
18 ***The diagonals of a rhombus*** $ABCD$ ***intersect at*** P **.** $AD=4\,cm, <PAD=30^0$

a) What is the measure of $<APD$ ***?***

b) What is the length of DP ***?***

c) What is the length of diagonal AC ***?***

d) What is the area of the rhombus ?



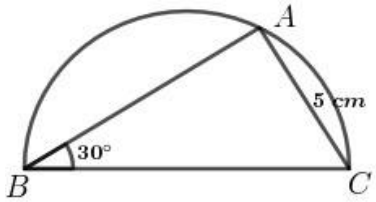
19 ***In the figure*** BC ***is the diameter of the semicircle .***

$<B=30^0, AC=5\,cm$

a) What is the measure of $<BAC$ ***?***

b) What is the radius of the semicircle ?

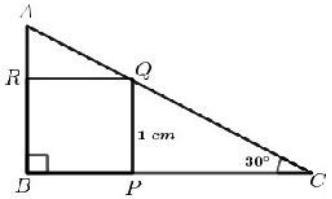
c) What is the perimeter of triangle ABC ***?***

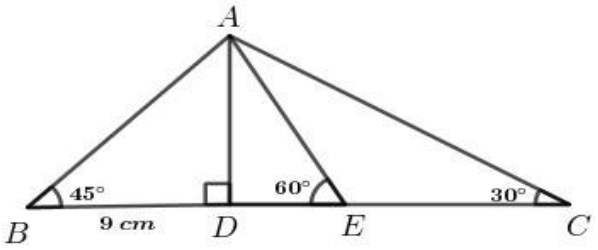
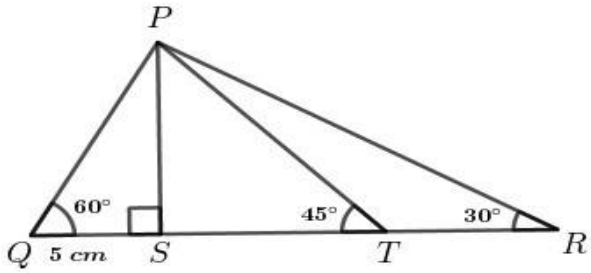
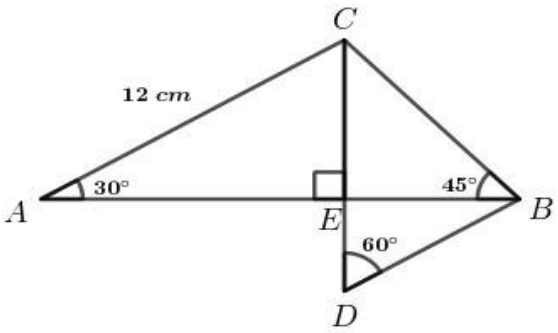


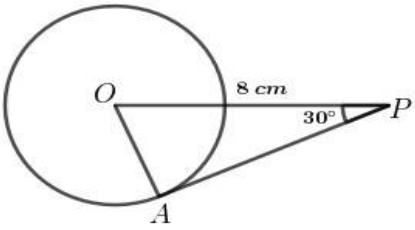
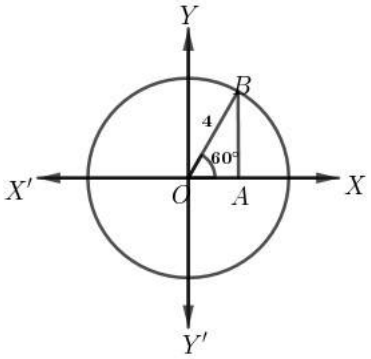
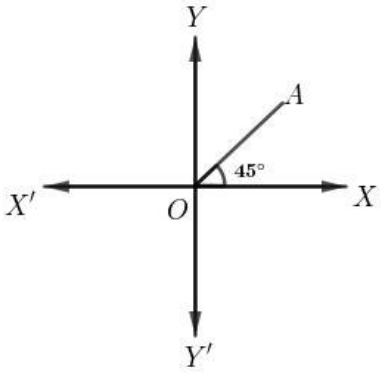
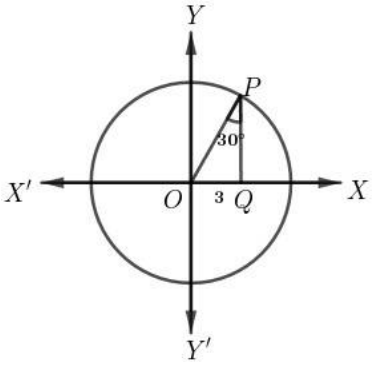
20 ***In the figure*** $BPQR$ ***is a square .*** $PQ=1\,cm, <C=30^0$

a) What is the measure of $<A$ ***?***

b) What is the length of CQ ***?***

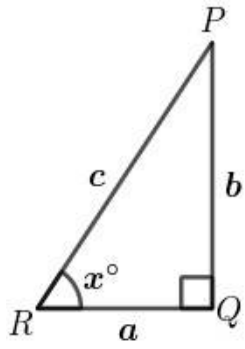


	c) What is the area of triangle AQR ***?*** ***d) What is the perimeter of triangle*** ABC ***?***
21	***In the figure*** $\angle ABD=45^\circ, \angle ADE=90^\circ$, $\angle AED=60^\circ, \angle ACE=30^\circ, BD=9\,cm$ **a)** ***What is the length of*** AD **?** **b)** ***What is the length of*** CD **?** **c)** ***What is the length of*** CE **?** **d)** ***What is the perimeter of the triangle*** ACE **?** 
22	***In the figure*** $\angle PQS=60^\circ, \angle PSQ=90^\circ$ $\angle PTS=60^\circ, \angle PRT=30^\circ, QS=5\,cm$ **a)** ***What is the length of*** PS **?** **b)** ***What is the length of*** SR **?** **c)** ***What is the length of*** TR **?** 
23	***In the figure*** $\angle BAC=30^\circ, \angle ABC=45^\circ$, $\angle AEC=90^\circ, \angle BDE=60^\circ, AC=12\,cm$ **a)** ***What is the length of*** CE **?** **b)** ***What is the length of*** BE **?** **c)** ***What is the length of*** AB **?** **d)** ***What is the area of the triangle*** BCD **?** 
24	***The slant height of a cone makes an angle*** 30^0 ***with its height . The slant height is*** **40** ***cm .*** **a)** ***What is the relation connecting the radius, the height and the slant height of a cone?*** ***b) What is its radius ?*** ***c) What is its lateral surface area ?***
25	***The radius of a cone makes an angle*** 60^0 ***with its slant height .The radius is*** **9 cm .**

	a) What is the relation connecting the radius, the height and the slant height of a cone? ***b) What is its slant height ?*** ***c) What is its volume ?***
26	***In the figure*** O ***is the centre of the circle .*** P ***is*** **8** ***cm away from*** O ***and*** PA ***is a tangent and*** $\angle OPA = 30^0$ ***.*** ***a) What is the measure of*** $\angle OAP$ ***?*** ***b) What is the length of*** PA ***?*** ***c) What is the perimeter of the circle ?*** 
27	***In the figure line*** AB ***is perpendicular to the x-axis.*** $OA = 4\,cm, \angle AOB = 60^0$ ***a) What is the measure of*** $\angle OAB$ ***?*** ***b) What is the length of*** OB ***?*** ***c) What are the coordinates of*** A ***?*** 
28	***In the figure line*** OA ***makes an angle*** 45^0 ***with the x-axis.*** ***a) What are the coordinates of*** O ***?*** ***b) What is the slope of line*** OA ***?*** ***c) Write down the coordinates of a point on the line*** OA ***other than the origin ?*** 
29	***In the figure line*** PQ ***is perpendicular to the x-axis.*** $OQ = 3\,cm, \angle OPQ = 30^0$ ***a) What is the measure of*** $\angle POQ$ ***?*** ***b) What is the radius of the circle ?*** ***c) What are the coordinates of*** P ***?*** 

30

In triangle PQR , $\angle Q = 90^0, \angle R = x^0$ ***and the length of the sides*** QR, PQ, PR ***are*** a, b, c ***respectively.***



a) Which among the following is $\tan x^0$ ***?***

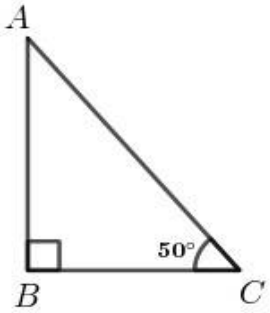
$$\left(\frac{b}{c} \ , \ \frac{a}{c} \ , \ \frac{b}{a} \ , \ \frac{a}{b} \right)$$

b)Similarly write $\sin x^0$ ***and*** $\cos x^0$ ***from this triangle ?***

c) Prove that $\frac{\sin x^0}{\cos x^0} = \tan x^0$ ***?***

31

In triangle ABC , $\angle B = 90^0, \angle C = 50^0$.



a) What is the measure of $\angle A$ ***?***

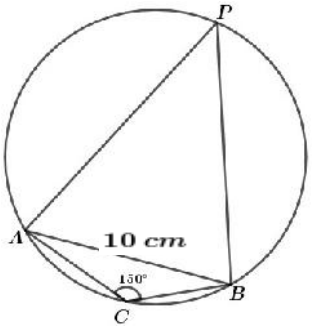
b) Which among the following is $\tan 50^0$ ***?***

$$\left(\frac{AB}{AC} \ , \ \frac{BC}{AC} \ , \ \frac{BC}{AB} \ , \ \frac{AB}{BC} \right)$$

c) Prove that $\tan 50^0 \times \tan 40^0 = 1$ ***?***

32

In triangle ABC , $AB = 10\,cm, \angle ACB = 150^0$.



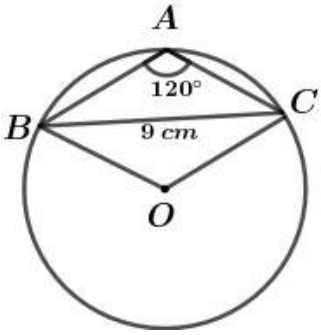
P is a point on the alternate arc of arc ACB .

a) What is the measure of $\angle APB$ ***?***

b)What is the circumdiameter of triangle ABC ***?***

33

In triangle ABC , $\angle BAC = 120^0, BC = 9\,cm$. O ***is the centreof the circle .***



a) What is the measure of the angle made on the alternate arc by an arc BAC ***?***

b) What is the measure of the angle made by a chord BC ***at the centre of the circle ?***

c) What is the radius of the circle ?

34	*When sun is an elevation of* 60^0 *, the length of the shadow of a tree is* 12 *meters.* *a) Draw a rough figure based on the given details ?* *b) What is the height of the tree ?* *c) What will be the length of the shadow if sun is an elevation of* 30^0 *?* `
35	*Two children stand on either side of a tower of height* 42 *meters . First child sees the top of the tower at an elevation of* 30^0 *and the second child sees it at an elevation of* 60^0 *a) Draw a rough figure based on the given details?* *b) What is the distance between the tower and the first child ?* *c) What is the distance between the children ?*
36	*A man standing on the bottom of a hill sees the top of a mountain at an elevation of* 60^0 *and sees it from the top of the hill at an elevation of* 45^0 *.* *The mountain is* 500 *metres away from the hill .* *a) Draw a rough figure based on the given details ?* *b) What is the height of the mountain ?* *c) What is the height of the hill ?*
37	*A man standing on the bottom of a building sees he top of a tower at an elevation of* 45^0 *and sees it from the top of the building at an elevation of* 30^0 *.* *The tower is 50 metres away from the building .* *a) Draw a rough figure based on the given details ?* *b) What is the height of the tower ?* *c) What is the height of the building ?*
38	*Manu and Nandu stand on either side of a building . Manu sees the top of the building at an elevation of* 45^0 *and Nandu sees it an elevation of of* 30^0 *. The distance between the children is* 100 *metres .The building and the children are on the same line .* *a) Draw a rough figure based on the given details ?* *b) What is the height of the building ?*

39	*Two boys stand on either side of a hill . First boy sees the top of the hill at an elevation of* 60^0 *and the second boy sees it at an elevation of* 30^0 *.The distance between the boys is* 400 *metres .The hill and the boys are on the same line.* *a) Draw a rough figure based on the given details ?* *b) What is the height of the hill ?*
40	*A man standing on the top of a* 40 *metres high building sees a car at a depression of* 30^0 *a) Draw a rough figure based on the given details ?* *b) What is the distance between the building and the car ?*
41	*A man standing on the top of a tower sees a car ,50 m away from the foot of the tower at a depression of* 60^0 . *a) Draw a rough figure based on the given details ?* *b)What is the height of the tower ?*
42	*A man standing on the top of a building sees the top of a tower at a depression of* 30^0 *and its base at a depression of* 60^0 *. The distance between the building and the tower is* 90 *metres .* *a) Draw a rough figure based on the given details ?* *b) What is the height of the building ?* *c) What is the height of the tower ?*
43	*A man standing on the top of a* 30 *metres high building sees the top of a flag post at a depression of* 30^0 *and its base at a depression of* 45^0 *a) Draw a rough figure based on the given details ?* *b) What is the distance between the building and the flag post ?* *c) What is the height of the flag post ?*
44	*A man standing on the top of a building sees the top of a hill it at an elevation of* 30^0 *and its base at a depression of* 45^0 *. The height of the building is* 80 *metres .* *a) Draw a rough figure based on the given details ?* *b) What is the distance between the hill and the building ?* *c) What is the height of the hill ?*

45	*Two cars are parked on either side of a* 50 *metres high building .A man standing on the top of this building sees the cars at depressions of* 45^0 *and* 30^0 . *a) Draw a rough figure based on the given details ?* *b) What is the distance between the building and the first car ?* *c) What is the distance between the cars ?*
46	*A man standing on the top of a building sees the top of a tower at an elevation of* 45^0 *and its base at a depression of* 30^0 *from . The height of the building is* 25 *metres.* *a) Draw a rough figure based on the given details ?* *b) What is the distance between the building and the tower ?* *c) What is the height of the tower ?*
47	*A man standing on the top of a building sees the top of a hill at an elevation of* 30^0 *and its base at a depression of* 60^0 *. The height of the building is* 72 *metres .* *a) Draw a rough figure based on the given details ?* *b) What is the distance between the hill and the building ?* *c) What is the height of the hill ?*

EXTRA QUESTIONS

48	*A boy standing* 300 *meters from the bottom of a hill sees its top at an elevation of* 30^0 . *Moving few metres towards the hill, he sees it an elevation of* 60^0 . *a) Draw a rough figure based on the given details?* *b) What is the height of the hill ?* *c) How far does the boy move towards the hill ?*
49	*A man standing away from the bottom of a flag post sees its top at an elevation of* 30^0 . *Moving* 20 *metres towards the flag post , he sees its top at an elevation of* 45^0 . *a) Draw a rough figure based on the given details ?* *b) What is the height of the hill ?*

50	***A man standing away from the bottom of a tower sees its top at an elevation of*** 60^0***.*** ***Standing back by*** **50** ***metres , he sees it an elevation of*** 30^0 **.** ***a) Draw a rough figure based on the given details ?*** ***b) What is the height of the tower ?***
51	***A man saw the top of a building under construction at an elevation of*** 30^0 **.** ***The completed building was*** **10** ***metres higher and the man saw its top at an elevation of*** 60^0 ***a) Draw a rough figure based on the given details ?*** ***b) What is the height of the building ?*** ***c) What is the distance between the building and the man ?***
52	***A man standing on the top of a building sees a car at a depression of*** 60^0 **.** ***After moving down by*** **20** ***metres, he sees it at a depression of*** 30^0 **.** ***a) Draw a rough figure based on the given details ?*** ***b) What is the height of the building ?*** ***c) What is the distance between the building and the car ?***
53	***A man standing on the top of a building sees a car at a depression of*** 60^0 **.** ***When it moves*** **50** ***metres in the opposite direction of the building ,he sees it at a depression of*** 30^0 **.** ***a)Draw a rough figure based on the given details ?*** ***b)What is the height of the building ?***
54	***A man*** **1.6** ***metres tall standing at the bottom of a building sees the top of a hill at an elevation of*** 60^0 **.** ***He sees it again at an elevation of*** 30^0 ***from the top the building .*** ***The hill is*** **90** ***metres away from the building .*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the height of the hill S?*** ***c) What is the height of the building ?***

55	***A man* 1.8 *metres tall standing on the top of a building sees the top of a tower at an elevation of* 30^0 *and its base at a depression of* 45^0 *.The height of the building is* 28.2*m*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the distance between the building and the tower ?*** ***c) What is the height of the tower ?***
56	***A* 1.6 *metres tall boy saw the top of a building under construction at an elevation of* 30^0*.*** ***The completed building was* 10 *metres higher and he saw its top an elevation of* 60^0 ***from the same spot.*** ***a) Draw a rough figure based on the given details ?*** ***b) What is the height of the building ?***

WANDOOR GANITHAM – S.S.L.C STUDY MATERIAL 2021

FOCUS AREA - QUESTION BANK - TANGENTS

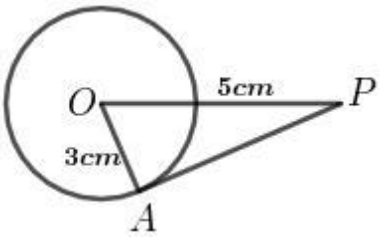
1 *There is a point* **10** *cm away from the centre of a circle of radius* **6** *cm . A tangent is drawn through that point .*

a) *What is the angle between a tangent at a point and the radius through that point* **?**

b) *What is the length of the tangent* **?**

2 *In the figure ,O is the centre of the circle and AP is a tangent*

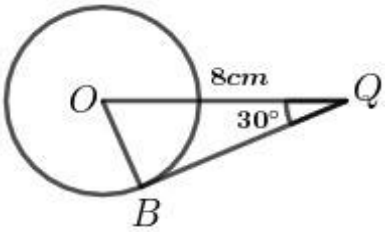
OA **= 3** *cm* *, OP* **= 5** *cm .*



a) *What is the measure of* $< OAP$ **?**

b) *What is the length of the tangent PA* **?**

3 *In the figure , O is the centre of the circle and QB is a tangent .* $OQ = 8\ cm$, $< OQB = 30^0$

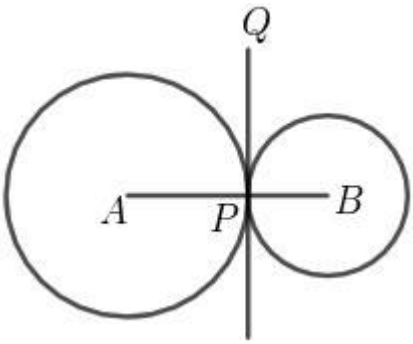


a) *What is the measure of* $< OBQ$ **?**

b) *What is the radius of the circle* **?**

c) *What is the length of the tangent QB* **?**

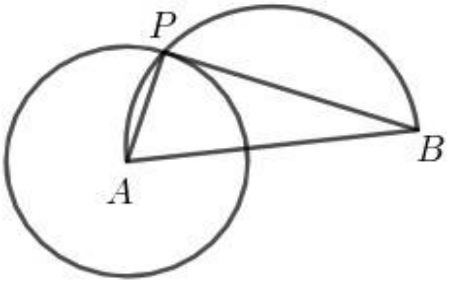
4 *In the figure ,two circles intersect at P . PQ is a tangent to the circle with centre A .*



a) *What is the measure of* $< APQ$ **?**

b) *Prove that PQ is a tangent to the circle with centre B* **?**

5 *In the figure ,a circle and a semicircle intersect at P . A is the centre of the circle and AB is the diameter of the semicircle .*



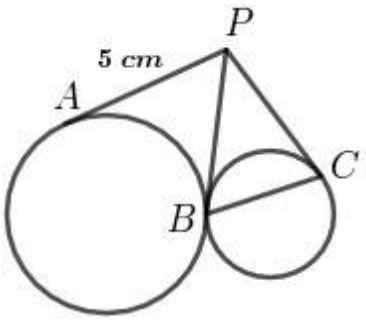
a) *What is the measure of* $< APB$ **?**

b) *Prove that BP is a tangent to the circle with centre A* **?**

6	*In the figure , diagonals of a rhombus intersect at a point P on the circle with centre A .* **a)** *What is the measure of < APD ?* **b)** *Prove that DP is a tangent to the circle with centre A ?*
7	*In the figure ,O is the centre of the circle and the tangents through the points A and B . intersect at P . < APB = 40⁰* **a)** *What is the measure of < OAP ?* **b)** *What is the measure of < AOB ?*
8	*In the figure , O is the centre of the circle and the tangents through the points A and B . < AOB = 130⁰* **a)** *What is the measure of < OAP ?* **b)** *What is the measure of < APB ?*
9	*In the figure , A and B are the centres of the circles . Tangents are drawn from a point P to these circles . < CAD = 120⁰* **a)** *What is the measure of < ACP ?* **b)** *What is the measure of < CPD ?* **c)** *What is the measure of < EBF ?*
10	*In the figure O is the centre of the incircle . The circle touches the sides of the triangle at the points P , Q and R < BAC = 55⁰ , < ABC = 45⁰* **a)** *What is the measure of < BPO ?* **b)** *What is the measure of < POQ ?*

	c) ***What is the measure of*** $< QOR$ **?**
11	***In the figure , O is the centre of circle and the tangents through the points A and B intersect at P .*** **a)** ***What is the measure of*** $< OAP$ **?** **b)** ***Prove that the triangles AOP and BOP are equal ?*** **c)** ***Prove that the tangents have the same length*** **?**
12	***In the figure , O is the centre of circle and the tangents through the points A and B intersect at P .*** **a)** ***What is the measure of*** $< OAP$ **?** **b)** ***Prove that the triangles AOP and BOP are equal ?*** **c)** ***Prove that OP is the bisector of*** $< APB$ **?**
13	***In the figure , O is the centre of circle and the tangents through the points A and B intersect at P .*** **a)** ***What is the measure of*** $< OAP$ **?** **b)** ***Prove that the triangles AOP and BOP are equal ?*** **c)** ***Prove that OP is the bisector of*** $< AOB$ **?**
14	***In the figure , O is the centre of circle and the tangents through the points A and B intersect at P .*** **a)** ***What is the measure of*** $< OAP$ **?** **b)** ***Prove that the triangles AOP and BOP are equal ?*** **c)** ***Prove that the angles of the triangles AOM and BOM are equal ?*** **d)** ***Prove that OP is the bisector of AB ?*** **e)** ***What is the measure of*** $< AMO$ **?**

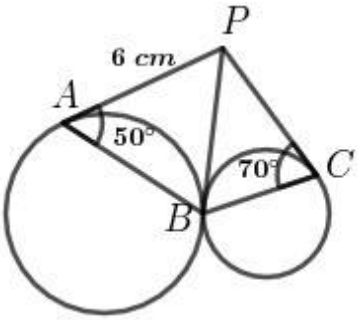
15 *In the figure two circle intersect at B . The tangents through A , B , C meet at P . PA = 5 cm .*



a) *What is the length of PB ?*

b) *Prove that PBC is an isosceles triangle ?*

16 *In the figure two circle intersect at B . The tangents through A , B , C meet at P . PA = 6 cm , < BAP = 50⁰ , < BCP = 70⁰*

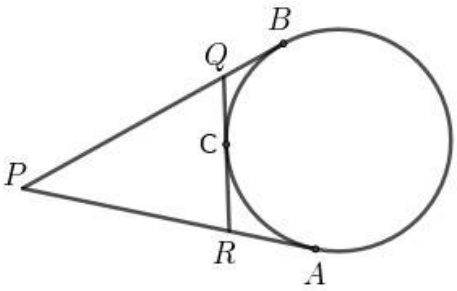


a) *What is the length of PB ?*

b) *What is the measure of < APB ?*

c) *What is the measure of < APC ?*

17 *In the figure , tangents through the points A and B of a circle intersect at P . QR is a tangent through C*

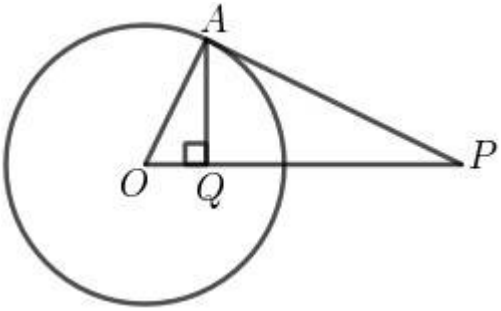


a) *Which other line has the same length as that of PA ?*

b) *Which other line has the same length as that of* **RC ?**

c) *Prove that the perimeter of the triangle PQR is double the length of PA ?*

18 *In th figure , O is the centre of the circle . AP is a tangent . AQ is perpendicular to OP .*

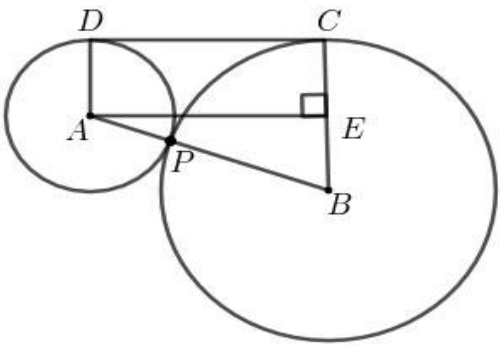


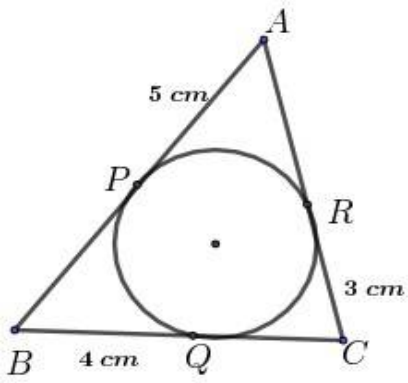
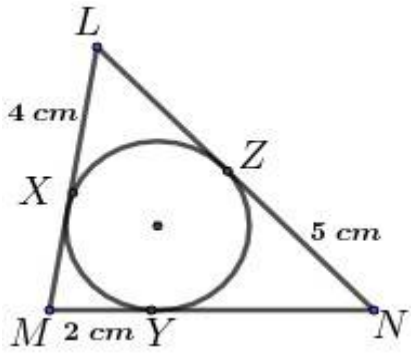
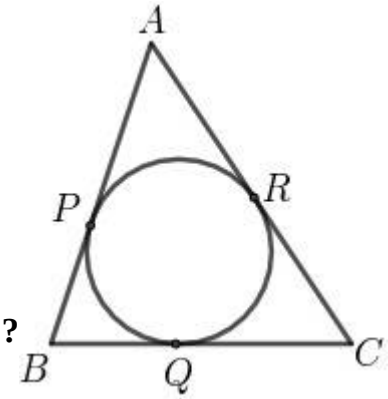
a) *What is the measure of < OAP ?*

b) *Prove that the angles of the triangles OAP and OAQ are same ?*

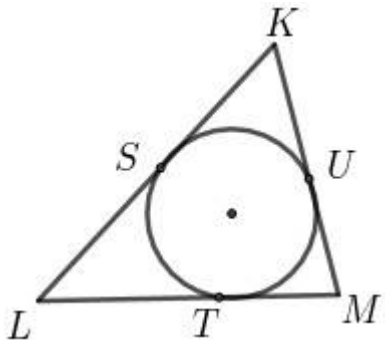
c) *Prove that OP x OQ = OA^2 ?*

19 *In the figure , two circles intersect at P . CD is the common tangent of the circles . Radius of the smaller circle is 4 cm and the radius of the larger circle is* **9** *cm. AE is perpendicular to BC .*



	a) ***What is the measure of*** $< ADC$ **?** **b)** ***Prove that AECD is a rectangle*** **?** **c)** ***What is the length of BE*** **?** **d)** ***What is the length of AB*** **?** **e)** ***What is the length of the tangent CD*** **?**
20	***In the figure , the circle touches the sides of the triangle ABC at the points P , Q , R . AP = 5 cm , BQ = 4 cm CR = 3 cm .*** **a)** ***What is the length of AR*** **?** **b)** ***What is the length of BC*** **?** **c)** ***What is the perimeter of the triangle ABC*** **?** 
21	***In the figure , the circle touches the sides of the triangle LMN at the points X ,Y , Z . LX = 4 cm , MY = 2 cm NZ = 5 cm .*** **a)** ***What is the length of LZ*** **?** **b)** ***What is the length of MN*** **?** **c)** ***What is the perimeter of the triangle LMN*** **?** 
22	***In the figure , the circle touches the sides of the triangle ABC at the points P ,Q , R . AB = 10 cm , BC = 8 cm AC = 12 cm .*** **a)** ***Which other line has the same length as that of AP*** **?** **b)** ***If the length AP is taken as*** x ***, what is the length of BQ*** **?** **c)** ***What is the value of*** x **?** **d)** ***What are the lengths of the lines AR , BP and CQ*** **?** 

23 *In the figure , the circle touches the sides of the triangle KLM at the points S , T , U . KL = 11 cm , LM = 9 cm , KM = 7 cm.*



a) *Which other line has the same length as that of KS ?*

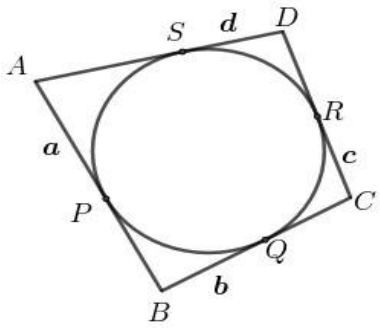
b) *If the length KS is taken as x , what is the length of LT ?*

c) *What is the value of x ?*

d) *What are the lengths of the lines KU , LS and MT ?*

24 *In the figure , the circle touches the sides of the quadrilateral at the points P , Q , R , S .*

AP = a , BQ = b , CR = c , DS = d



a) *What is the length of AS ?*

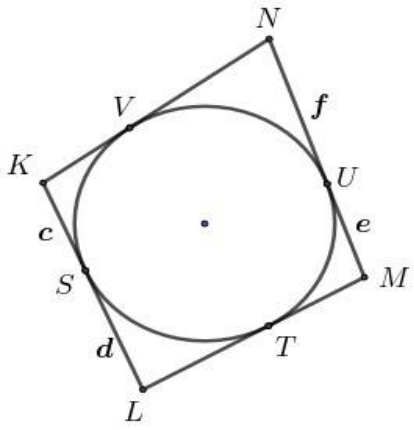
b) *What is the length of BC ?*

c) *What is the length of AD ?*

d) *What is the perimeter of* **ABCD** *?*

25 *In the figure , the circle touches the sides of the quadrilateral at the points S ,T , U , V*

KS = c , LS = d , MU = e , NU = f



a) *What is the length of KV ?*

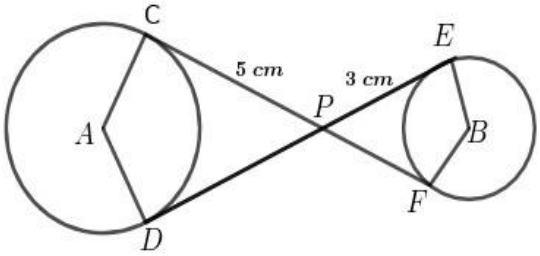
b) *What is the length of LM ?*

c) *What is the length of KN ?*

d) *What is the perimeter of KLMN ?*

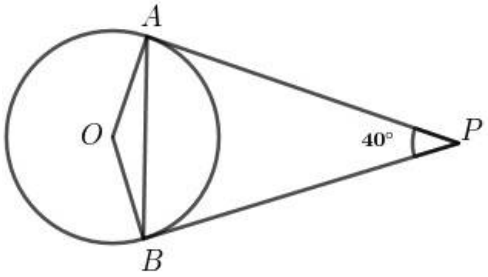
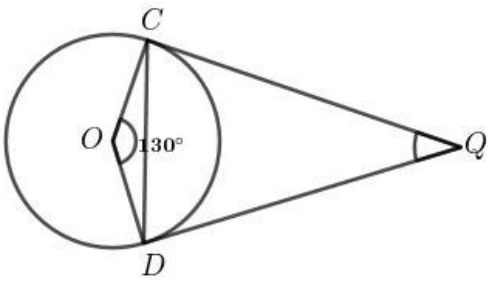
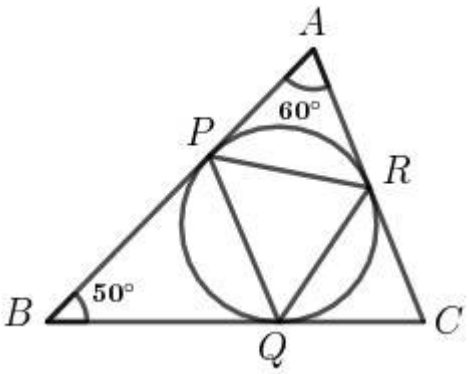
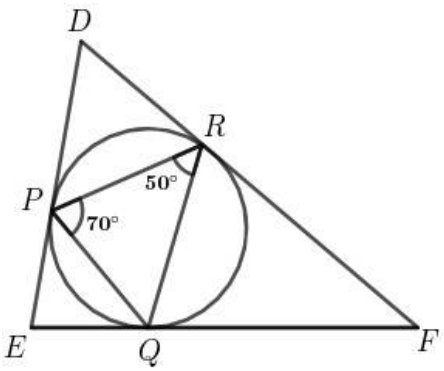
26 *In the figure , A and B are the centres of the circles and tangents are drawn from a point P to the circles*

PC = 5 cm , PE = 3 cm



a) *What is the length of PD ?*

b) *What is the length of CF ?*

27	***In the figure , O is the centre of the circle and tangents through the points A and B intersect at P .***  ***< APB = 40⁰*** **a)** ***What is the measure of < AOB ?*** **b)** ***What is the measure of < OAB ?*** **c)** ***What is the measure of < ABP ?***
28	***In the figure , O is the centre of the circle and tangents through the points C and D intersect at Q .***  ***< COD = 130⁰*** **a)** ***What is the measure of < CQD ?*** **b)** ***What is the measure of < CDQ ?*** **c)** ***What is the measure of < ODC ?***
29	***In the figure , the circle touches the sides of the triangle ABC at the points P ,Q , R .***  ***< A = 60⁰ , < B = 50⁰*** **a)** ***What is the measure of < BQP ?*** **b)** ***What is the measure of < PRQ ?*** **c)** ***What is the measure of < PQR ?***
30	***In the figure , the circle touches the sides of the triangle DEF at the points P ,Q , R .***  ***< QPR = 70⁰ , < PRQ = 50⁰*** **a)** ***What is the measure of < EQP ?*** **b)** ***What is the measure of < E ?*** **c)** ***What is the measure of < F ?***

31 *In the figure , O is the centre of the incircle .*

$< B = 90^0$, $BC = a$, $AC = b$, $AB = c$

a) *What is the measure of* $< OPB$?

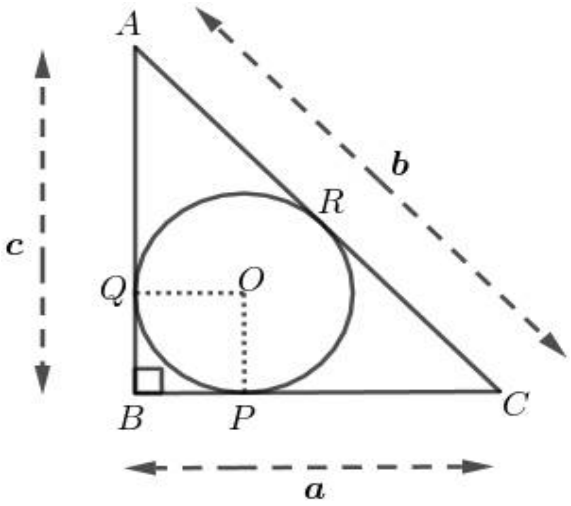
b) *Prove that BPOQ is a square ?*

c) *If the radius of the incircle is taken as* r ,

what is the length of CP ?

d) *What is the length of AR ?*

e) *Prove that the diameter of the incircle is* $a + c - b$.



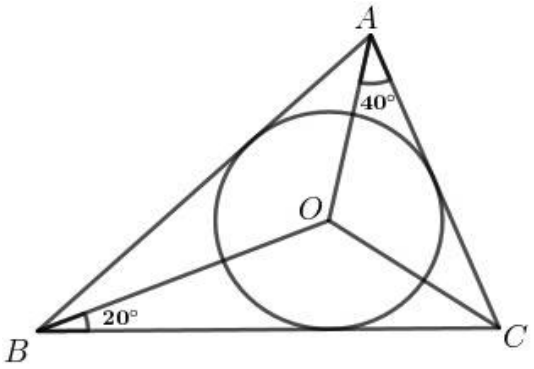
32 *In the figure , O is the centre of the incircle .*

$< OBC = 20^0$, $< OAC = 40^0$

a) *What is the measure of* $< OBA$?

b) *What is the measure of* $< BAC$?

c) *What is the measure of* $< OCB$?

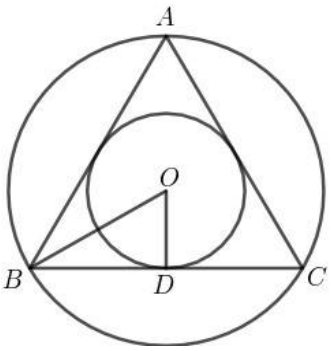


33 *In the figure ABC is an equilateral triangle . O is the centre of the circumcircle and incircle .*

a) *What is the measure of* $< ODB$?

b) *What is the measure of* $< OBD$?

c) *Prove that the radius of the circumcircle of an equilateral triangle is double its radius of the incircle*



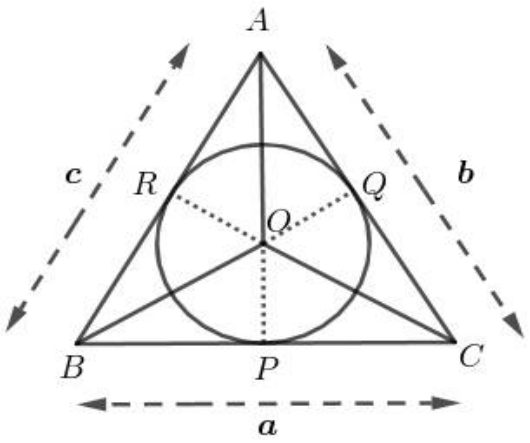
34 *In the figure , O is the centre of the triangle ABC*

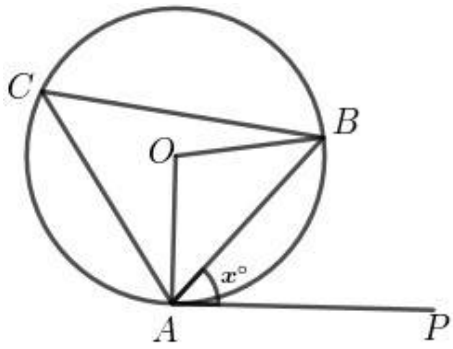
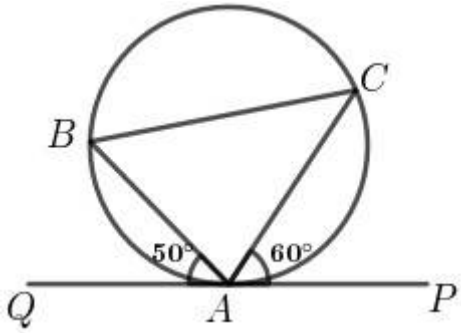
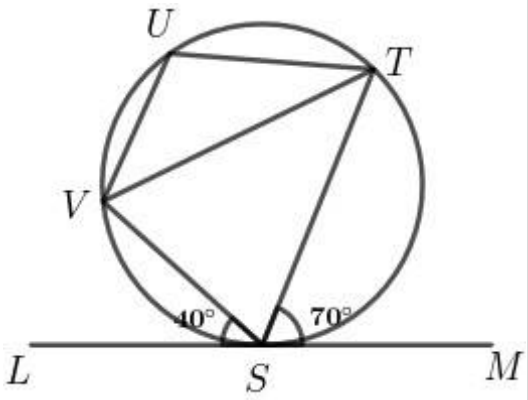
The circle touches the sides of the triangle at P , Q , R . $BC = a$, $AC = b$, $AB = c$

a) *What is the perimeter of the triangle ABC ?*

b) *What is the measure of* $< OPB$?

c) *What is the area of the triangle BOC ?*



	d) ***What is the area of the triangle AOC ?*** **e)** ***Prove that the area of a triangle ABC is the product of the radius of its incircle and half its perimeter ?***
35	***The side of an equilateral triangle is 4 cm*** **a)** ***What is its perimeter ?*** **b)** ***What is its area ?*** **c)** ***What is its radius of its incircle ?***
36	***In the figure O is the centre and AP is a tangent*** $< BAP = x^0$ **a)** ***What is the measure of*** $< OAP$ **?** **b)** ***What is the measure of*** $< OBA$ **?** **c)** ***What is the measure of*** $< AOB$ **?** **d)** ***What is the measure of*** $< ACB$ **?** 
37	***In the figure PQ is a tangent .*** $< BAQ = 50^0, < CAP = 60^0$ **a)** ***What is the measure of*** $< BCA$ **?** **b)** ***What is the measure of*** $< ABC$ **?** 
38	***In the figure LM is a tangent .*** $< LSV = 40^0$, $< TSM = 70^0$ **a)** ***What is the measure of*** $< STV$ **?** **b)** ***What is the measure of*** $< SVT$ **?** **c)** ***What is the measure of*** $< TUV$ **?** 

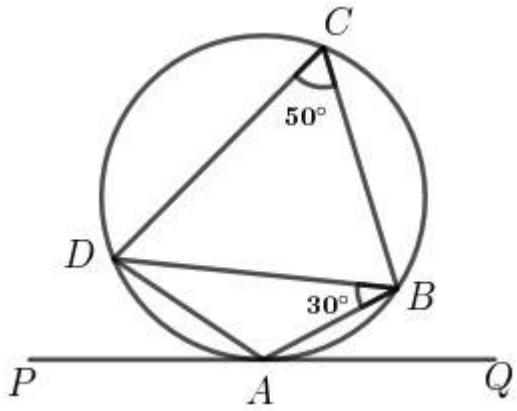
39 *In the figure PQ is a tangent .*

$< ABD = 30^0$, $< BCD = 50^0$

a) *What is the measure of* $< BAD$?

b) *What is the measure of* $< PAD$?

c) *What is the measure of* $< ADB$?



40 *In the figure , tangents through the points A and B intersect at P .* $PA = 7\ cm$, $< APB = 40^0$

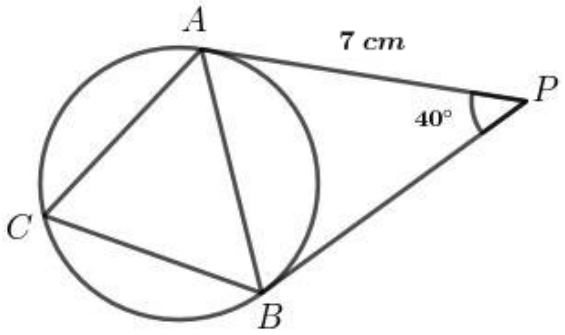
$AC = BC$

a) *What is the length of* PB ?

b) *What is the measure of* < ABP ?

c) *What is the measure of* < ACB ?

d) *What is the measure of* < CAP ?



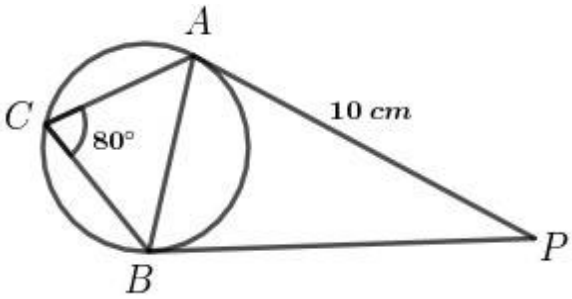
41 *In the figure , tangents through the points A and B intersect at P .* $AC = BC$, $PA = 10\ cm$

a) *What is the measure of* $< ABP$?

b) *What is the length of* PB ?

c) *What is the measure of* $< APB$?

d) *What is the measure of* $< CAP$?



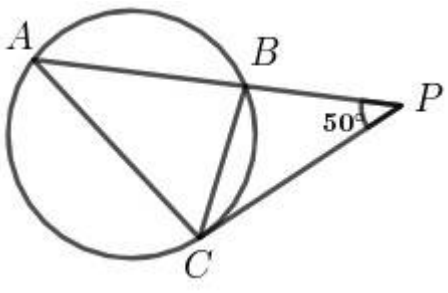
42 *In the figure PC is a tangent .*

$< BPC = 50^0$, $BC = BP$

a) *What is the measure of* $< BCP$?

b) *What is the measure of* $< BAC$?

c) *What is the measure of* $< ABC$?



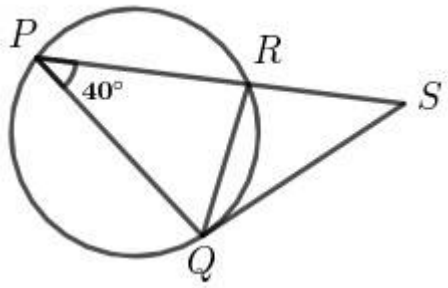
43 ***In the figure QS is a tangent .***

$< QPR = 40^0$, $RQ = RS$

a) ***What is the measure of*** $< RQS$ ***?***

b) ***What is the measure of*** $< QRS$ ***?***

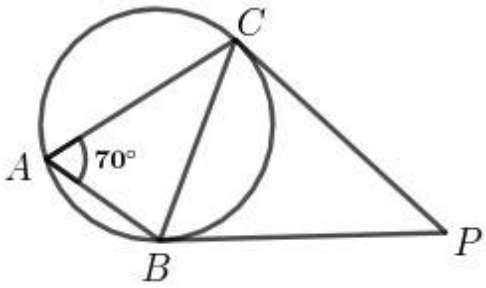
c) ***What is the measure of*** $< PQR$ ***?***



44 ***In the figure , tangents through the points B and C intersect at P .*** $< BAC = 70^0$

a) ***What is the measure of*** $< PBC$ ***?***

b) ***What is the measure of*** $< BPC$ ***?***



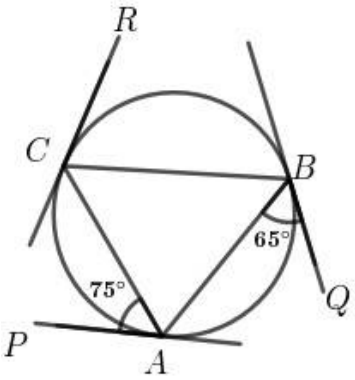
45 ***In the figure PA , QB and C are tangents .***

$< CAP = 75^0$, $< BAQ = 65^0$

a) ***What is the measure of*** $< ABC$ ***?***

b) ***What is the measure of*** $< ACB$ ***?***

c) ***What is the measure of*** $< ACR$ ***?***



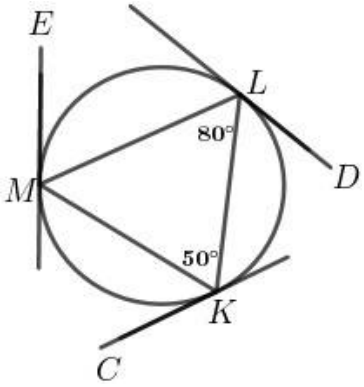
46 ***In the figure EM , CK and DL are tangents .***

$< KLM = 80^0$, $< LKM = 50^0$

a) ***What is the measure of*** $< CKM$ ***?***

b) ***What is the measure of*** $< EML$ ***?***

c) ***What is the measure of*** $< LMD$ ***?***



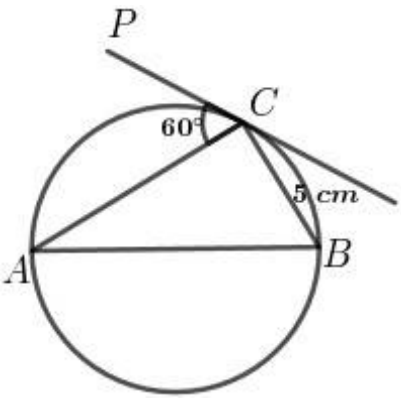
47 ***In the figure AB is the diameter of the circle .***

CP is a tangent . $BC = 5$ ***cm .***

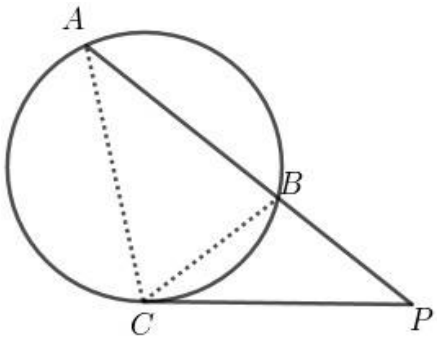
a) ***What is the measure of*** $< ACB$ ***?***

b) ***What is the measure of*** $< ABC$ ***?***

c) ***What is the diameter of the circle*** ***?***



48 ***In the figure chord AB is extended to meet the tangent through C at P .***

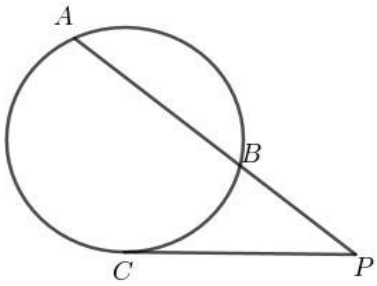


a) ***If*** $< BCP = x^0$, ***What is the measure of*** $< BAC$?

b) ***Prove that the angles of triangles APC and BPC are same*** ?

c) ***Prove that*** $PA \times PB = PC^2$?

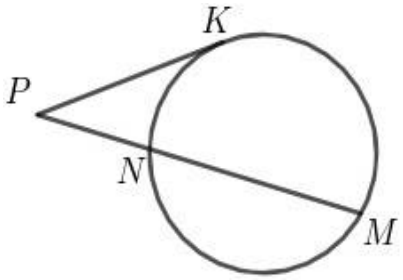
49 ***In the figure chord AB is extended to meet the tangent through C at P . PA = 9 cm , AB = 5 cm***



a) ***What is the length of PB*** ?

b) ***What is the length of PC*** ?

50 ***In the figure chord MN is extended to meet the tangent through K at P .***

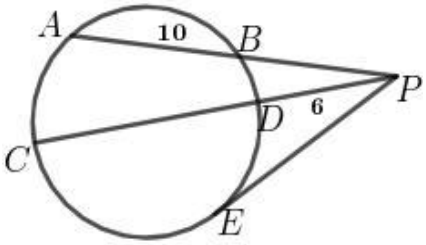


PK = 8 cm , ***PN*** = 4 cm

a) ***PM x PN = ...***

b) ***What is the length of MN*** ?

52 ***In the figure two chords AB and CD are extended to meet the tangent through E at P .***



PA = 18 ***cm*** , ***AB*** = 10 ***cm*** , ***PD*** = 6 ***cm***

a) ***What is the length of PB*** ?

b) ***PC x PD = ...***

c) ***What is the length of CD*** ?

d) ***What is the length of the tangent PE*** ?

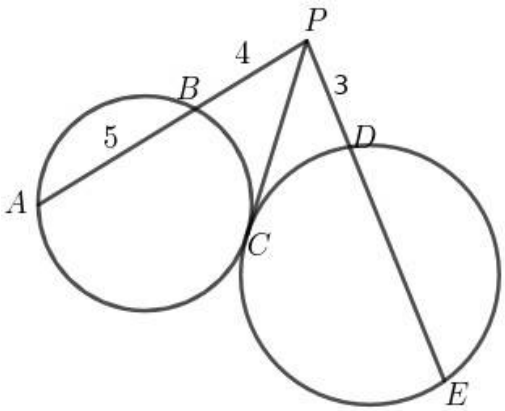
53 ***In the figure two circles intersect at C and CP is a common tangent to both the circles .***

AB = 5 cm , PB = 4 cm , PD = 3 cm

a) ***What is the length of PA ?***

b) ***What is the length of the tangent PC ?***

c) ***What is the length of DE ?***



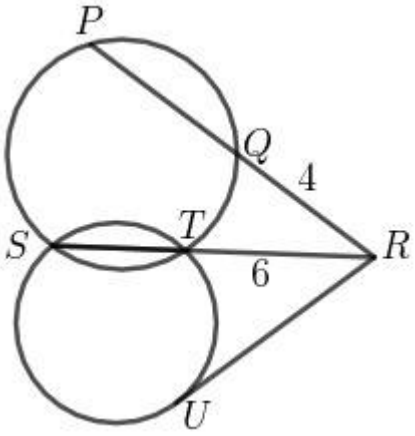
54 ***In the figure two circles intersect at S and T . RU is a tangent .***

PQ = 8 cm , QR = 4 cm , TR = 6 cm

a) ***What is the length of PR ?***

b) ***What is the length of RS ?***

c) ***What is the length of the tangent RU ?***



55 ***In the figure A and B are the centres of the circles and PQ is a common tangent . The distance between the centres of the circles is 15 cm . The radius of the smaller circle is 3 cm and radius of the larger circle is 6 cm .***

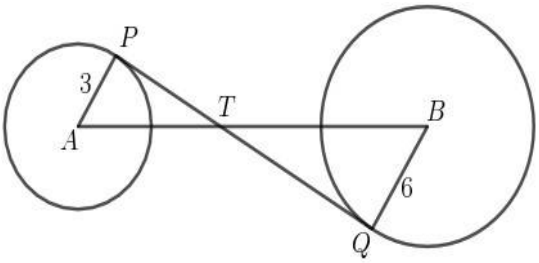
a) ***What is the measure of < APT ?***

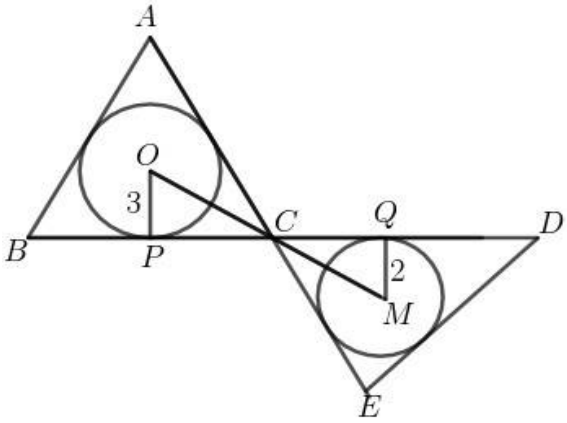
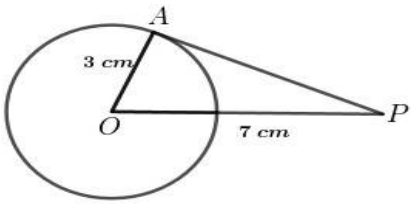
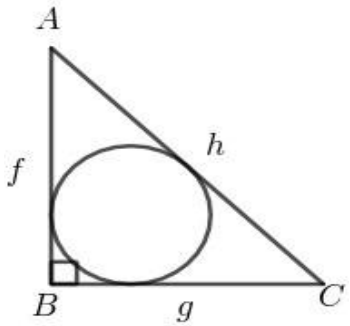
b) ***What is the measure of < BQT ?***

c) ***Prove that the angles of the triangles APT and BQT are same ?***

d) ***Prove that*** $\frac{AT}{BT} = \frac{1}{2}$ **?**

e) ***What is the length of the tangent PQ ?***



56	*In the figure ABC is an equilateral triangle . O is the centre of the incircle of the triangle ABC and M is the centre of the incircle of the triangle CDE .OP = 3 cm , MQ = 2cm* **a)** *What is the measure of < OPC ?* **b)** *What is the measure of < OCP ?* **c)** *What is the measure of < QCM ?* **d)** *What is the distance between the centres of the circles ?* 
57	*Draw a circle of radius 4 cm and mark a point on it . Draw a tangent through that point*
58	*In the figure O is the centre of the circle . AP is a tangent .* **a)** *What is the measure of < OAP ?* **b)** *Draw this figure in correct measurements .* 
59	*Draw a circle of radius 2.5 cm and mark a point 6 cm away from its centre. Draw the tangents to the circle from this point . Measure the length of the tangents .*
60	*Draw a circle of radius 3.5 cm and mark a point 8 cm away from its centre. Draw the tangents to the circle from this point .Measure the length of the tangents .*
61	*Draw a circle of radius 2.5 cm . Draw a triangle of angles 50º , 60º , 70º with all its sides touching the circle .*
62	*Draw a circle of radius 3 cm . Draw a triangle of angles 55º , 50º , 75º with all its sides touching the circle .*
	EXTRA QUESTIONS
63	*Draw a triangle of sides 3 cm , 4 cm , 6 cm . Draw its incircle and measure its radius*
64	*Draw a triangle of sides 4 cm , 6 cm , 7 cm . Draw its incircle and measure its radius*
65	*In the figure ,* < B = 90^0 . AB = f, BC = g , AC = h **a)** *What is the perimeter of the triangle ?* **b)** *What is the radius of the incircle of the triangle ?* **c)** *If the radius of the incircle is r , prove that the area of the triangle is r ($r + h$)* 

WANDOOR GANITHAM – S.S.L.C STUDY MATERIAL 2021

FOCUS AREA - QUESTION BANK - POLYNOMIALS

1	***If*** $p(x)=x^2-5x+4$ **a) *Find*** $p(1)$ **?** **b) *Check whether*** $x-4$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
2	***If*** $p(x)=x^2-8x+15$ **a) *Find*** $p(3)$ **?** **b) *Check whether*** $x-5$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
3	***If*** $p(x)=x^2-11x+30$ **a) *Find*** $p(5)$ **?** **b) *Check whether*** $x-6$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
4	***If*** $p(x)=x^2+x-2$ **a) *Find*** $p(1)$ **?** **b) *Check whether*** $x+2$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
5	***If*** $p(x)=x^2+2x-8$ **a) *Find*** $p(2)$ **?** **b) *Check whether*** $x+4$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***

6	***If*** $p(x)=x^2-3x-4$ **a) *Find*** $p(4)$ **?** **b) *Check whether*** $x+1$ ***is a factor of*** $p(x)$ ***or not*** **?** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials*** **?**
7	***If*** $p(x)=x^2-2x-15$ **a) *Find*** $p(5)$ **?** **b) *Check whether*** $x+3$ ***is a factor of*** $p(x)$ ***or not*** **?** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials*** **?**
8	$p(x)$ ***is a second degree polynomial ,*** $p(1)=0, p(2)=0$ ***and the coefficient of*** x^2 ***is*** **1** **a) *Write a factor of*** $p(x)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
9	$p(x)$ ***is a second degree polynomial ,*** $p(2)=0, p(3)=0$ ***and the coefficient of*** x^2 ***is*** **1** **a) *Write a factor of*** $p(x)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
10	$p(x)$ ***is a second degree polynomial ,*** $p(4)=0, p(7)=0$ ***and the coefficient of*** x^2 ***is*** **1** **a) *Write a factor of*** $p(x)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
11	$p(x)$ ***is a second degree polynomial ,*** $p(1)=0, p(-5)=0$ ***and the coefficient of*** x^2 ***is*** **1** **.** **a) *Write a factor of*** $p(x)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
12	$p(x)$ ***is a second degree polynomial ,*** $p(3)=0, p(-4)=0$ ***and the coefficient of*** x^2 ***is*** **1** **.** **a) *Write a factor of*** $p(x)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***

13	$p(x)$ ***is a second degree polynomial ,*** $p(-3)=0, p(-5)=0$ ***and the coefficient of*** x^2 ***is*** **1** **.** **a)** ***Write a factor of*** $p(x)$ **?** **b)** ***Write*** $p(x)$ ***as the product of two first degree polynomials ?***
14	$p(x)$ ***is a second degree polynomial ,*** $p(-1)=0, p(-2)=0$ ***and the coefficient of*** x^2 ***is*** **1** **.** **a)** ***Write a factor of*** $p(x)$ **?** **b)** ***Write*** $p(x)$ ***as the product of two first degree polynomials ?***
15	***If*** $p(x)=x^2-kx+10$ **a)** ***Find*** $p(2)$ **?** **b)** ***What is the value of*** k ***if*** $x-2$ ***is a factor of*** $p(x)$ **?** **c)** ***Write*** $p(x)$ ***as the product of two first degree polynomials if one of its factor is*** $x-2$ **?**
16	***If*** $p(x)=x^2-kx+18$ **a)** ***Find*** $p(3)$ **?** **b)** ***What is the value of*** k ***if*** $x-3$ ***is a factor of*** $p(x)$ **?** **c)** ***Write*** $p(x)$ ***as the product of two first degree polynomials if one of its factor is*** $x-3$ **?**
17	***If*** $p(x)=x^2-kx+35$ **a)** ***Find*** $p(5)$ **?** **b)** ***What is the value of*** k ***if*** $x-5$ ***is a factor of*** $p(x)$ **?** **c)** ***Write*** $p(x)$ ***as the product of two first degree polynomials if one of its factor is*** $x-5$ **?**
18	***If*** $p(x)=kx^2-7x+3$

	a) ***Find*** $p(3)$ **?** **b)** ***What is the value of*** k ***if*** $x-3$ ***is a factor of*** $p(x)$ **?** **c)** ***Write*** $p(x)$ ***as the product of two first degree polynomials if one of its factor is*** $x-3$ **?**
19	***If*** $p(x)=3x^2+kx-2$ **a)** ***Find*** $p(2)$ **?** **b)** ***What is the value of*** k ***if*** $x-2$ ***is a factor of*** $p(x)$ **?** **c)** ***Write*** $p(x)$ ***as the product of two first degree polynomials if one of its factor is*** $x-2$ **?**
20	***If*** $p(x)=x^2+5x+k$ **a)** ***Find*** $p(-1)$ **?** **b)** ***What is the value of*** k ***if*** $x+1$ ***is a factor of*** $p(x)$ **?** **c)** ***Write*** $p(x)$ ***as the product of two first degree polynomials if one of its factor is*** $x+1$ **?**
21	***If*** $p(x)=x^2+10x+k$ **a)** ***Find*** $p(-1)$ **?** **b)** ***What is the value of*** k ***if*** $x+2$ ***is a factor of*** $p(x)$ **?** **c)** ***Write*** $p(x)$ ***as the product of two first degree polynomials if one of its factor is*** $x+2$ **?**
22	***If*** $p(x)=x^2+5x+k$ **a)** ***Find*** $p(-3)$ **?** **b)** ***What is the value of*** k ***if*** $x+3$ ***is a factor of*** $p(x)$ **?** **c)** ***Write*** $p(x)$ ***as the product of two first degree polynomials if one of its factor is*** $x+3$ **?**

23	***If*** $p(x)=x^2-9x+6$ **a) *Find*** $p(1)$ **?** **b) *Find the number to be added to*** $p(x)$ ***to get a polynomial for which*** $x-1$ ***is a factor ?***
24	***If*** $p(x)=x^2-7x+9$ **a) *Find*** $p(2)$ **?** **b) *Find the number to be added to*** $p(x)$ ***to get a polynomial for which*** $x-2$ ***is a factor ?***
25	***If*** $p(x)=x^2-8x$ **a) *Find*** $p(3)$ **?** **b) *Find the number to be added to*** $p(x)$ ***to get a polynomial for which*** $x-3$ ***is a factor ?***
26	***If*** $p(x)=3x^2-5x$ **a) *Find*** $p(1)$ **?** **b) *Find the number to be added to*** $p(x)$ ***to get a polynomial for which*** $x-1$ ***is a factor ?***
27	***If*** $p(x)=x^2-7x+13$ **a) *Find*** $p(2)$ **?** **b) *Find the number to be subtracted from*** $p(x)$ ***to get a polynomial for which*** $x-2$ ***is a factor ?***
28	***If*** $p(x)=x^2+6x+5$ **a) *Find*** $p(1)$ **?** **b) *Find the number to be subtracted from*** $p(x)$ ***to get a polynomial for which*** $x-1$ ***is a factor ?***

29	***If*** $p(x)=x^2+3x$ **a) *Find*** $p(4)$ **?** **b) *Find the number to be subtracted from*** $p(x)$ ***to get a polynomial for which*** $x-4$ ***is a factor*** **?**
30	***If*** $p(x)=5x^2+3x$ **a) *Find*** $p(2)$ **?** **b) *Find the number to be subtracted from*** $p(x)$ ***to get a polynomial for which*** $x-2$ ***is a factor*** **?**
31	***If*** $p(x)=x^2-6x+5$ **a) *Find*** $p(1)$ **?** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
32	***If*** $p(x)=x^2+3x-18$ **a) *Find*** $p(3)$ **?** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
33	***If*** $p(x)=x^2+2x-15$ **a) *Find*** $p(5)$ **?** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
34	***If*** $p(x)=x^2+5x-14$ **a) *Find*** $p(2)$ **?** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
35	***If*** $p(x)=2x^2-5x+3$ **a) *Find*** $p(1)$ **?** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***

36	***If*** $p(x)=3x^2-2x-8$ **a) *Find*** $p(2)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
37	***If*** $p(x)=x^2-4$ **a) *Find*** $p(2)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?*** **c) *Write*** $9x^2-4$ ***as the product of two first degree polynomials ?***
38	***If*** $p(x)=x^2-100$ **a) *Find*** $p(10)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?*** **c) *Write*** $49x^2-100$ ***as the product of two first degree polynomials ?***
39	***If*** $p(x)=x^2-25$ **a) *Find*** $p(5)$ ***?*** **b) *Write*** $p(x)$ ***as the product of two first degree polynomials ?*** **c) *Write*** $16x^2-25$ ***as the product of two first degree polynomials ?***
40	***If*** $p(x)=(x-2)(x-6)$ **a) *Find*** $p(2)$ ***?*** **b) *Find the number added to*** $p(x)$ ***to get a perfect square ?***
41	***If*** $p(x)=(x-1)(x-5)$ **a) *Find*** $p(1)$ ***?*** **b) *Find the number added to*** $p(x)$ ***to get a perfect square ?***
42	***If*** $p(x)=(x-3)(x-7)$ **a) *Find*** $p(3)$ ***?*** **b) *Find the number added to*** $p(x)$ ***to get a perfect square ?***

43	***If*** $p(x)=(x+2)(x-6)$ **a) *Find*** $p(6)$ ***?*** **b) *Find the number added to*** $p(x)$ ***to get a perfect square ?***
44	***If*** $p(x)=(x+3)(x-7)$ **a) *Find*** $p(7)$ ***?*** **b) *Find the number added to*** $p(x)$ ***to get a perfect square ?***
45	***If*** $p(x)=(x-5)(x+1)$ **a) *Find*** $p(5)$ ***?*** **b) *Find the number added to*** $p(x)$ ***to get a perfect square ?***
46	***If*** $p(x)=(x-2)(x-8)+5$ **a) *Find*** $p(3)$ ***?*** **b) *Check whether*** $x-7$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
47	***If*** $p(x)=(x-1)(x-7)+5$ **a) *Find*** $p(2)$ ***?*** **b) *Check whether*** $x-6$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
48	***If*** $p(x)=(x-3)(x-9)+5$ **a) *Find*** $p(4)$ ***?*** **b) *Check whether*** $x-8$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
49	***If*** $p(x)=(x-1)(x+7)-20$ **a) *Find*** $p(3)$ ***?*** **b) *Check whether*** $x+9$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***

50	***If*** $p(x)=(x-5)(x+1)-7$ **a) *Find*** $p(6)$ **?** **b) *Check whether*** $x+2$ ***is a factor of*** $p(x)$ ***or not ?*** **c) *Write*** $p(x)$ ***as the product of two first degree polynomials ?***
51	$p(x)=x^{100}-1$ **a) *Find*** $p(1)$ **?** **b) `*Check whether*** $x-1$ ***is a factor of*** $p(x)$ ***or not ?***
52	$p(x)=x^{25}-1$ **a)** $p(1)$ **?** **b) *Check whether*** $x-1$ ***is a factor of*** $p(x)$ ***or not ?***
53	$p(x)=x^{11}+1$ **a)** $p(1)$ **?** **b) *Check whether*** $x+1$ ***is a factor of*** $p(x)$ ***or not ?***
53	$p(x)=x^{99}+1$ **a)** $p(1)$ **?** **b) *Check whether*** $x+1$ ***is a factor of*** $p(x)$ ***or not ?***
55	***If*** $p(x)=x^2+5x+6$ **a) *Find*** $p(1)$ **?** **b) *Write a factor of*** $p(x)-p(1)$ **?**
56	***If*** $p(x)=x^2+10x+24$ **a) *Find*** $p(2)$ **?** **b) *Write a factor of*** $p(x)-p(2)$ **?**
57	***If*** $p(x)=x^2+9x+20$

	a) *Find* $p(4)$ **?** **b) *Write a factor of*** $p(x)-p(4)$ ***?***
58	***If*** $p(x)=4x^2+9x+2$ **a) *Find*** $p(2)$ **?** **b) *Write a factor of*** $p(x)-p(2)$ ***?***
59	***If*** $p(x)=x^2-7x+12$ **a) *Find*** $p(1)$ **?** **b) *Write a factor of*** $p(x)-p(1)$ ***?*** **c) *Write*** $p(x)-p(1)$ ***as the product of two first degree polynomials ?***
60	***If*** $p(x)=x^2+3x+2$ **a) *Find*** $p(1)$ **?** **b) *Write a factor of*** $p(x)-p(1)$ ***?*** **c) *Write*** $p(x)-p(1)$ ***as the product of two first degree polynomials ?***
61	***If*** $p(x)=x^2+5x+6$ **a) *Find*** $p(2)$ **?** **b) *Write a factor of*** $p(x)-p(2)$ ***?*** **c) *Write*** $p(x)-p(2)$ ***as the product of two first degree polynomials ?***
62	***If*** $p(x)=x^2+9x+8$ **a) *Find*** $p(1)$ **?** **b) *Write a factor of*** $p(x)-p(1)$ ***?*** **c) *Write*** $p(x)-p(1)$ ***as the product of two first degree polynomials ?***
63	***If*** $p(x)=x^2-11x+30$ **a) *Find*** $p(3)$ **?** **b) *Write a factor of*** $p(x)-p(3)$ ***?*** **c) *Write*** $p(x)-p(3)$ ***as the product of two first degree polynomials ?***

64	***If*** $p(x)=x^2-13x+40$ **a) *Find*** $p(2)$ **?** **b) *Write a factor of*** $p(x)-p(2)$ ***?*** **c) *Write*** $p(x)-p(2)$ ***as the product of two first degree polynomials ?***
65	***If*** $p(x)=x^2-10x+16$ **a) *Find*** $p(1)$ **?** **b) *Write a factor of*** $p(x)-p(1)$ ***?*** **c) *Write*** $p(x)-p(1)$ ***as the product of two first degree polynomials ?***
66	***If*** $x^2-10x+16=(x-a)(x-b)$ **a) *What is the value of*** $a+b$ **?** **b) *What is the value of*** ab **?** **c) *Write*** $x^2-10x+16$ ***as the product of two first degree polynomials*** **?**
67	***If*** $x^2-15x+36=(x-a)(x-b)$ **a) *What is the value of*** $a+b$ **?** **b) *What is the value of*** ab **?** **c) *Write*** $x^2-15x+36$ ***as the product of two first degree polynomials*** **?**
68	***If*** $x^2-15x+54=(x-a)(x-b)$ **a) *What is the value of*** $a+b$ **?** **b) *What is the value of*** ab **?** **c) *Write*** $x^2-15x+54$ ***as the product of two first degree polynomials*** **?**
69	***If*** $x^2+10x+24=(x-a)(x-b)$ **a) *What is the value of*** $a+b$ **?** **b) *What is the value of*** ab **?** **c) *Write*** $x^2+10x+24$ ***as the product of two first degree polynomials*** **?**

70 ***If*** $x^2+3x-18=(x-a)(x-b)$

a) ***What is the value of*** $a+b$ **?**

b) ***What is the value of*** ab **?**

c) ***Write*** $x^2+3x-18$ ***as the product of two first degree polynomials*** **?**

71 ***If*** $x^2+5x-14=(x-a)(x-b)$

a) ***What is the value of*** $a+b$ **?**

b) ***What is the value of*** ab **?**

c) ***Write*** $x^2+5x-14$ ***as the product of two first degree polynomials*** **?**

72 ***Write the following second degree polynomials as the product of first degree polynomials .***

a) x^2+4x+3 **b)** $x^2+14x+48$ **c)** $x^2+6x-16$

d) $x^2-8x+12$ **e)** $x^2-10x+24$ **f)** $x^2-2x-45$

g) x^2+5x+6 **h)** $x^2+11x+18$ **i)** $x^2+3x-40$

j) $x^2-7x+12$ **k)** $x^2-9x+20$ **l)** $x^2-15x-34$

EXTRA QUESTIONS

73 $x-2$ ***and*** $x-3$ ***are the factors of*** $p(x)=x^2+mx+n$

a) ***Which among the following is equal to*** $p(2)$ ***?***

(2 , 3 , 1 , 0 ***)***

b) ***Prove that*** $3m+n=-9$ ***?***

c) ***What are the values of m and n ?***

74 ***If*** $p(x)=lx^2+mx+n$

a) ***Find*** $p(1)$ ***?***

b) ***If*** $x+1$ ***is a factor of*** $p(x)$ ***, prove that*** $m=l+n$ ***?***

c) ***Write second degree polynomial whose factor is*** $x+1$ ***?***

75	***If*** x ***is a natural number*** **a)** ***What number is to be added to*** x^2+10x ***to get a perfect square ?*** **b)** ***If*** $x^2+mx+36$ ***is a perfect square ,which number is*** $'m'$ **?** **c)** ***If*** x^2+mx+n ***is a perfect square , prove that*** $m^2=4n$ **?** **d)** ***Write a second degree polynomial which is a perfect square and having a factor*** $x+2$ **?**
76	***If*** x ***is a natural number*** **a)** ***What number is to be added to*** x^2-8x ***to get a perfect square ?*** **b)** ***If*** $x^2-mx+36$ ***is a perfect square ,which number is*** $'m'$ **?** **c)** ***If*** x^2-mx+n ***is a perfect square , prove that*** $m^2=4n$ **?** **d)** ***Write a second degree polynomial which is a perfect square and having a factor*** $x-3$ **?**
77	***The solution of the equation*** $p(x)=0$ ***are*** 2 ***and*** 3 **.** **a)** ***Write one factor of*** $p(x)$ **?** **b)** ***Write*** $p(x)$ ***as the product of two first degree polynomials ?***
78	***The solution of the equation*** $p(x)=0$ ***are*** 5 ***and*** -4 **.** **a)** ***Write one factor of*** $p(x)$ **?** **b)** ***Write*** $p(x)$ ***as the product of two first degree polynomials ?***
79	***The solution of the equation*** $p(x)=0$ ***are*** -3 ***and*** -7 **.** **a)** ***Write one factor of*** $p(x)$ **?** **b)** ***Write*** $p(x)$ ***as the product of two first degree polynomials ?***