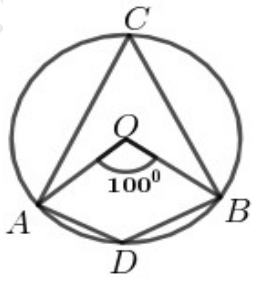
WANDOOR GANITHAM - S S L C MODEL QUESTION PAPER 2021

PREE4 **DETAILED ANSWER KEY - QUESTION PAPER 4**

Qn no.	Key
	For questions from 1 to 5 one score each .
1	**What is the common difference of the arithmetic sequence 6 , 10 , 14 ..... ?** **(6 , 4 , 2 , 8)**
	Answer . **4**
2	**In the figure O is the centre of the circle and < AOB = 100^0 .** **What is the measure of < ACB ?** **(50^0 , 80^0 , 130^0 , 200^0)** 
	Answer . **50^0**
3	**If $\sin x^0 = \cos x^0$,find the value of x ?** **(0 , 30 , 45 , 60)**
	Answer . **45**
4	**A line is drawn through the point (3, 2) parallel to the x-axis . If (5 , k) is a point on this line , what is the value of k ?** **(0 , 1 , 2 , 3)**
	Answer . **2**
5	**Which among the following is added to $x^2 + 36$ to get a perfect square ?** **($6x$, $18x$, $12x$, $36x$)**
	Answer . $12x$

For questions from 6 to 10 carries 2 scores each .

6 **Algebraic form of an arithmetic sequence is 4 n - 1 .**

a) What is its common difference ?

b) What is its first term ?

Answer .

a) Common difference = 4

b) First term = 4 - 1 = 3

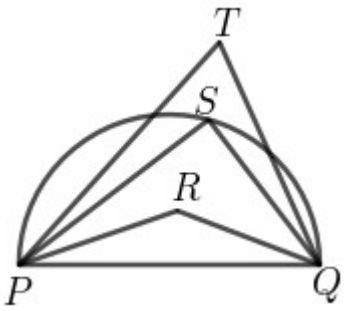
7 **Write** x^2-64 **as the product of two first degree polynomials ?**

Answer .

a) $x^2-64 = x^2-8^2 = (x+8)(x-8)$

8 **In the figure PQ is the diameter of the semicircle ..**

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



a) What is the measure of < S ?

b) What is the measure of < R ?

Answer .

a) < S = 90 ^{0} **(common difference = 90 – 60 = 30)**

b) < R = 90 + 30 = 120 ^{0}

9 **The base radius of a cone is 12 centimetres and its slant height is 20 centimetres .**

a) What is its height ?

b) Compute its volume ?

Answer .

a) $r^2+h^2=l^2$ ==> $12^2+h^2=20^2$ ==> $144+h^2=400$ ==> $h^2=400-144=256$ ==.>

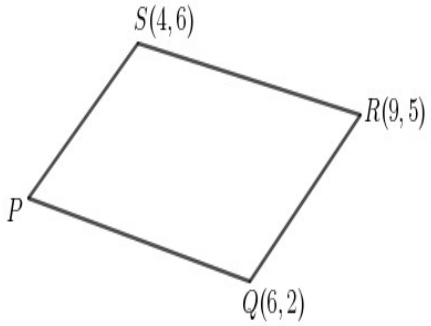
$h=\sqrt{256}=16\,cm$

b) Volume $= \frac{1}{3}\times\pi\times r^2\times h = \frac{1}{3}\times\pi\times 12^2\times 16 = 768\,\pi\ cm^3$

10 **In the figure PQRS is a parallelogram .**

a) What are the coordinates of P ?

b) What are the coordinates of the point of intersection of its diagonals ?



Answer .

a) $(6+4-9\ ,\ 2+6-5) = (1\ ,\ 3)$

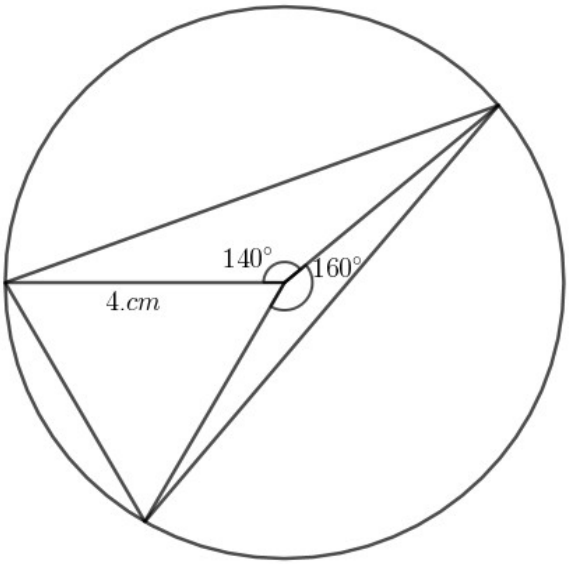
b) $(\frac{6+4}{2}\ ,\ \frac{2+6}{2}) = (\frac{10}{2}\ ,\frac{8}{2}) = (5\ ,\ 4)$

(Diagonals of a parallelogram bisect each other)

For questions from 11 to 20 carries 3 scores each .

11 **Draw a triangle of circumradius 4 cm and two of the angles 70^0 and 80^0 .**

Answer .



12 **Find the following sums .**

a) $1 + 2 + 3 + 4 + 5 + \ldots\ldots + 40$

b) $2 + 4 + 6 + 8 + 10 + \ldots\ldots + 80$

c) $1 + 3 + 5 + 7 + 9 + \ldots\ldots + 79$

Answer .

a) $1 + 2 + 3 + 4 + 5 + \ldots\ldots + 40 = \frac{40 \times 41}{2} = 820$

b) $2 + 4 + 6 + 8 + 10 + \ldots\ldots + 80 = 2 \times 820 = 1640$

c) $1 + 3 + 5 + 7 + 9 + \ldots\ldots + 79 = 1640 - 40 = 1600$

13 **Consider the polynomial** $p(x) = x^2 - 5x + 4$

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

b) Check whether $x - 4$ **is a factor of** $p(x)$ **?**

c) Write $p(x)$ **as the product of two first degree polynomials ?**

Answer .

a) $p(1) = 1^2 - 5 \times 1 + 4 = 1 - 5 + 4 = 0$

b) $p(4) = 4^2 - 5 \times 4 + 4 = 16 - 20 + 4 = 0$ **==> x – 4 is a factor of p(x)**

c) $(x - 1)(x - 4)$

14 **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 ?

Answer .

a) $\frac{Number\ of\ favourable\ results}{Total\ number\ of\ results} = \frac{3}{6} = \frac{1}{2}$

(Total results = 1 , 2 , 3 , 4 , 5 , 6 , favourable results = 2 , 4 , 6)

b) $\frac{Number\ of\ favourable\ results}{Total\ number\ of\ results} = \frac{3}{6} = \frac{1}{2}$ **(favourable results = 1 , 3 , 5)**

c) $\frac{Number\ of\ favourable\ results}{Total\ number\ of\ results} = \frac{3}{6} = \frac{1}{2}$ **(favourable results = 2 , 3 , 5)**

15 **The number of pictures drawn by the arts club members of a school are given below .**

15 , 39 , 30 , 42 , 27 , 33 , 24 , 18 , 36 , 21

a) What is the mean of the number of pictures ?

b) What is the median of the number of pictures ?

Answer .

a) $Mean = \frac{15+39+30+42+27+33+24+18+36+21}{10} = \frac{285}{10} = 28.5$

b) 15 , 18 , 21 , 24 , 27 , 30 , 33 , 36 , 39 , 42

Median $= \frac{27+30}{2} = \frac{57}{2} = 28.5$

16 **Two children stand on either side of a flag post of height 50 meters . First child sees the top of the flag post at an elevation of 45^0 and the second child sees it at an elevation of 30^0**

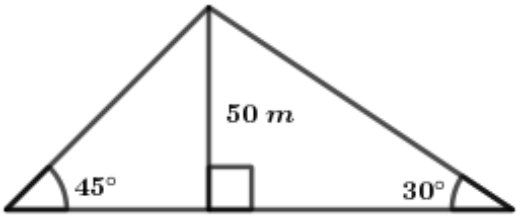
a) Draw a rough figure based on the given details?

b) What is the distance between the flag post and the first child ?

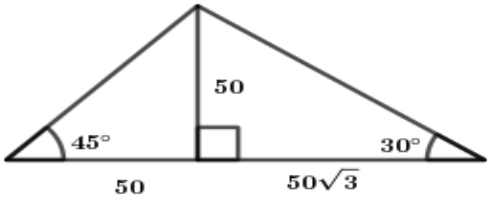
c) What is the distance between the flag post and the second child ?

Answer .

a)



b) Distance between the flag post and the first child = 50 *m*



c) Distance between the flag post and the second child = $50\sqrt{3}$ *m*

17 **The base radii of two cones are in the ratio 3 : 4 and their slant heights are in the ratio 5 : 6**

a) If the radius of the first cone is taken as 3 r , what will be the radius of the second cone ?

b) What is the ratio of their curved surface areas ?

c) If the curved surface area of the first cone is 300π square centimetres , what will be the curved surface area of the second cone ?

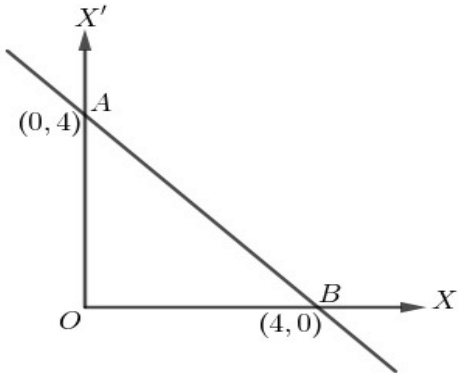
Answer .

a) Radius of the second cone = 4 r

b) $\pi \times 3r \times 5l \ : \ \pi \times 4r \times 6l \ = \ 15\pi l \ : \ 24\pi l \ = \ 15 \ : \ 24 \ = \ 5 \ : \ 8$

c) Curved surface area of the second cone = $\frac{8}{5} \times 300\pi \ = \ 480\pi \ cm^2$

18 **Consider the line passing through the points A and B in the picture .**



a) What is the slope of the line ?

b) Write the coordinates of another point on this line

c) If (x , y) is point on this line , prove that x + y =4

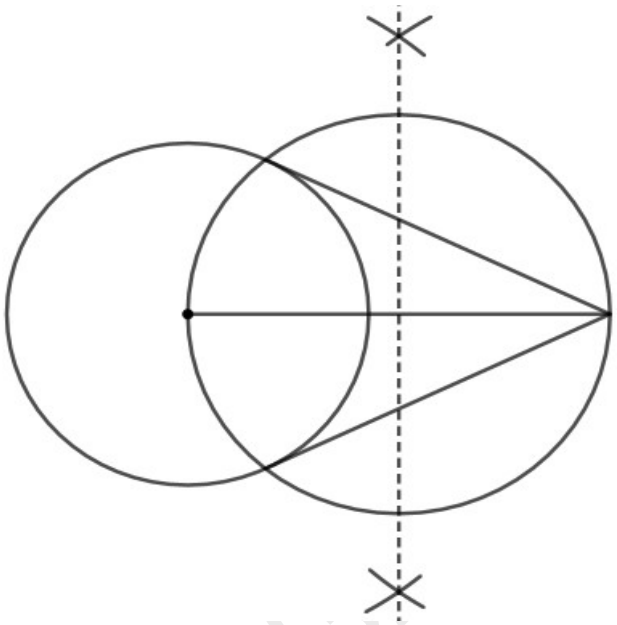
Answer .

a) $Slope = \frac{y_2 - y_1}{x_2 - x_1} \ = \ \frac{0-4}{4-0} \ = \ \frac{-4}{4} \ = \ -1$

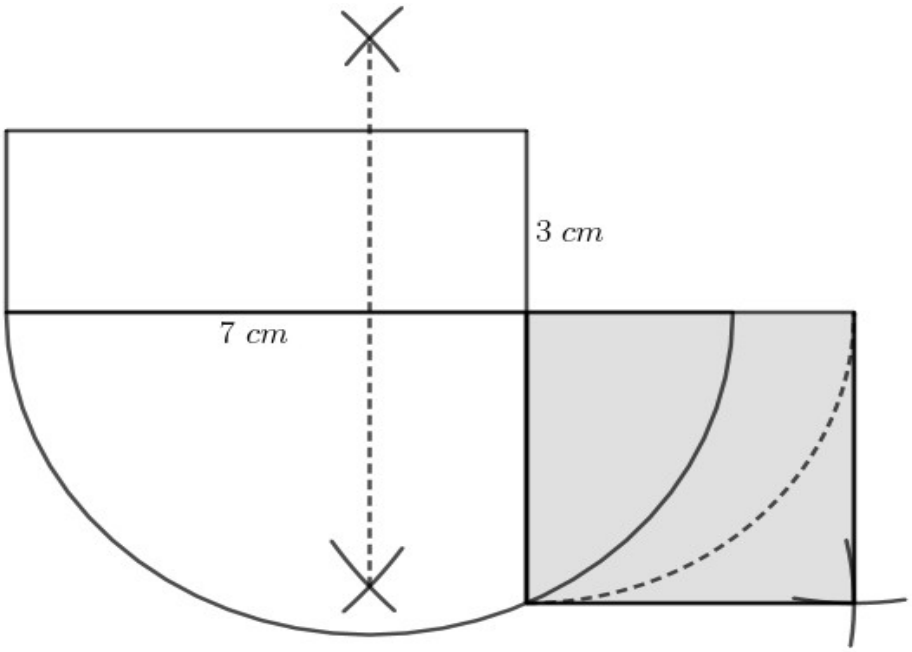
b) $(\frac{0+4}{2} \ , \ \frac{4+0}{2}) \ = \ (\frac{4}{2} \ , \ \frac{4}{2}) \ = \ (2 \ , \ 2)$ **or any point (x , y) with x + y = 4**

c) $\frac{y-0}{x-4} \ = \ -1 \ \Longrightarrow \ y \ = \ -1(x-4) \ \Longrightarrow \ y \ = \ -x + 4 \ \Longrightarrow \ y + x = 4$

or

	$\frac{y-4}{x-0} = -1$ ==> $y-4 = -x$ ==> $y+x=4$
19	**Draw a circle of radius 3 cm and mark a point 7 cm away from its centre.** **Draw the tangents to the circle from this point .**
	Answer . 
20	**When each side of a square was decreased by 5 metres , the area became 225 square metres .** **a) Write 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 ?**
	Answer . **a)** $(x-5)^2 = 225$ **b)** $x-5 = \sqrt{225} = 15$ $x = 15+5 = 20$ **Length of a side of the original square = 20 m**
For questions from 21 to 30 carries 4 scores each .	
21	**Draw a rectangle of width 7 cm and height 3 cm . Draw a square of the same area .**

Answer .



22 **Consider the following number patterns .**

1

2 3

4 5 6

7 8 9 10

……

……

(pattern 1)

4

7 10

13 16 19

22 25 28 31

……

……

(pattern 2)

	pattern 1	pattern 2
Next line of the number patterns	a) ……	b)……
Last number in 10th line	c) ……	d) ……

Answer .

pattern 1	pattern 2
a) 11 12 13 14 15	**b) 34 37 40 43 46**
c) $\frac{10\times11}{2} = 55$	**d)** $3\times55 + 1 = 165 + 1 = 166$

23 **A bag contains 25 white and 35 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 $\frac{5}{9}$ **?**

Answer .

a) Probability of getting a green bead = $\frac{Number\ of\ favourable\ results}{Total\ number\ of\ results} = \frac{35}{60}$

b) Probability of getting a white bead = $\frac{Number\ of\ favourable\ results}{Total\ number\ of\ results} = \frac{25}{60}$

c) $\frac{35}{x} = \frac{5}{9}$ ==> $x = 63$

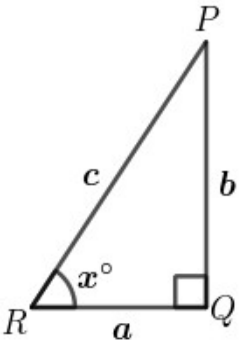
Number of white beads more added = $63 - 60 = 3$

24 **A line is drawn by joining the points A(3 , 6) and B(7 , 6) .**

a) What are the coordinates of the midpoint of the line ?

b) Write the coordinates of another two points on this line ?

c) What are the coordinates of the point on the x-axis which is equidistant from the ends of the line AB ?

	Answer . **a)** $(\frac{3+7}{2}\ ,\ \frac{6+6}{2}) = (\frac{10}{2}\ ,\ \frac{12}{2}) = (5\ ,\ 6)$ **b)** $(5\ ,\ 1)\ ,(5\ ,\ 2)$ **or any two pints with x coordinate 5 .** **(Since the y coordinates of A and B are equal , the line AB is parallel to the x-axis .** **So the perpendicular bisector of AB is parallel to the y- axis)** **c)** $(5\ ,\ 0)$ **(Any point on the perpendicular bisector of a line is equidistant from its ends)**
25	**Consider the polynomial** $p(x)=x^2+9x+8$ **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 ?**
	Answer . **a)** $p(1) = 1^2 + 9\times 1 + 8 = 1 + 9 + 8 = 18$ **b)** $x - 1$ **c)** $p(x)-p(1) = x^2 + 9x + 8 - 18 = x^2 + 9x - 10$ $x^2 + 9x - 10 = (x - 1)(x + 10)$
26	**In triangle** PQR **,** $<Q=90^0, <R=x^0$ **and the length of the sides** QR, PQ, PR **are** a, b, c **respectively.** **a) Which among the following is** $\tan x^0$ **?** **(** $\frac{b}{c}$ **,** $\frac{a}{c}$ **,** $\frac{b}{a}$ **,** $\frac{a}{b}$ **)** **b) Similarly write** $\sin x^0$ **and** $\cos x^0$ **from this triangle ?** **c) Prove that** $\frac{\sin x^0}{\cos x^0} = \tan x^0$ **?** 

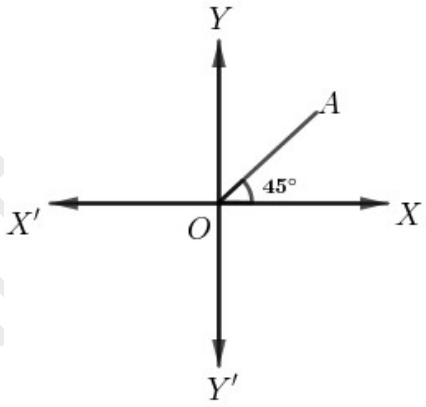
Answer .

a) $\tan x^0 = \frac{b}{a}$

b) $\sin x^0 = \frac{b}{c}$, $\cos x^0 = \frac{a}{c}$

c) $\frac{\sin x^0}{\cos x^0} = \frac{b}{c} \div \frac{a}{c} = \frac{b}{c} \times \frac{c}{a} = \frac{b}{a} = \tan x^0$

27 **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 the line OA **?**

c) Write the coordinates of another two points on this line other than the origin ?

Answer .

a) $(0\ ,0)$

b) Slope = $\tan 45^0 = 1$

c) $(1\ ,1)$ **,** $(2\ ,2)$ **or any two points (x , y) with x = y**

28 **Workers in a factory are sorted according to their daily wage in the table below .**

Daily wage (Rs)	Number of workers
900	5
1000	7
1250	10
1500	11
1750	8
2000	6

a) If the workers are arranged in increasing order of daily wage , what is the daily wage of the worker at the 23rd position ?

b) If the workers are arranged in increasing order of daily wages , the daily wage of the worker at what position is taken as the median ?

c) Find the median daily wage ?

Answer .

Daily wage	Number of workers
Upto 900	5
Upto 1000	12
Upto 1250	22
Upto 1500	33
Upto 1750	41
Upto 2000	47

a) *Rs* 1500

b) $\frac{N+1}{2} = \frac{47+1}{1} = \frac{48}{8} = 24$

c) Median = *Rs* 1500

29 **A sector of arc length** 10π **centimetres is rolled up into a cone of slant height 15 centimetres .**

a) What is the radius of the sector ?

b) What is the base perimeter of the cone ?

c) What is the base radius of the cone ?

d) What is the central angle of the sector ?

Answer .

a) Radius of the sector = Slant height of the cone = $15\ cm$

b) Base perimeter of the cone = Arc length of the sector = $10\pi\ cm$

c) Base radius of the cone = $\frac{10\pi}{2\pi} = 5\ cm$

d) $\frac{x}{360} = \frac{5}{15}$ ==> $x = \frac{5\times 360}{15} = 120^0$

Central angle of the sector = 120^0

30 **The sum of the square of a number and 8 times that number is 240 .**

a) Write a second degree equation by taking the number as x

b) Find the number ?

Answer .

a) $x^2 + 8x = 240$

b) $x^2 + 8x + 4^2 = 240 + 4^2$ ==> $(x+4)^2 = 256$

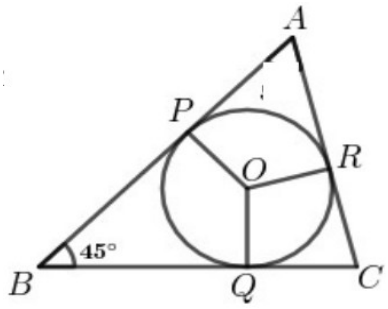
$x + 4 = \sqrt{256} = 16$ ==> $x = 16 - 4 = 12$

Number = 12

For questions from 31 to 45 carries 5 scores each .

31 **In the figure O is the centre of the circle . The circle touches the sides of the triangle at the points P , Q and R**

< ABC = 45^0

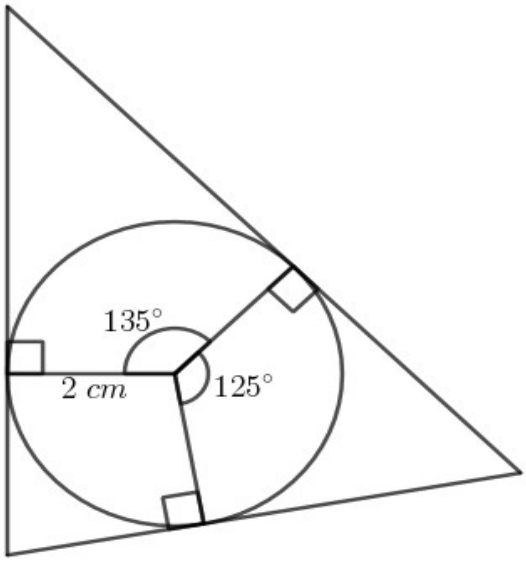


a) What is the measure of < POQ ?

b) Draw a circle of radius 3 cm . Draw a triangle of angles 45º , 55º , 80º with all its sides touching this circle

Answer .

a) < POQ = 180 – 45 = 135 ^{0} (In a circle , the angles between the radii through two points and the angle between the tangents at these points are supplementary)



32 **The sum of first 9 terms of an arithmetic sequence is 189 and the sum of first 4 terms is 44 .**

a) What is its fifth term ?

b) What is the sum of first 5 terms of this sequence ?

c) What is its third term ?

d) What is its common difference ?

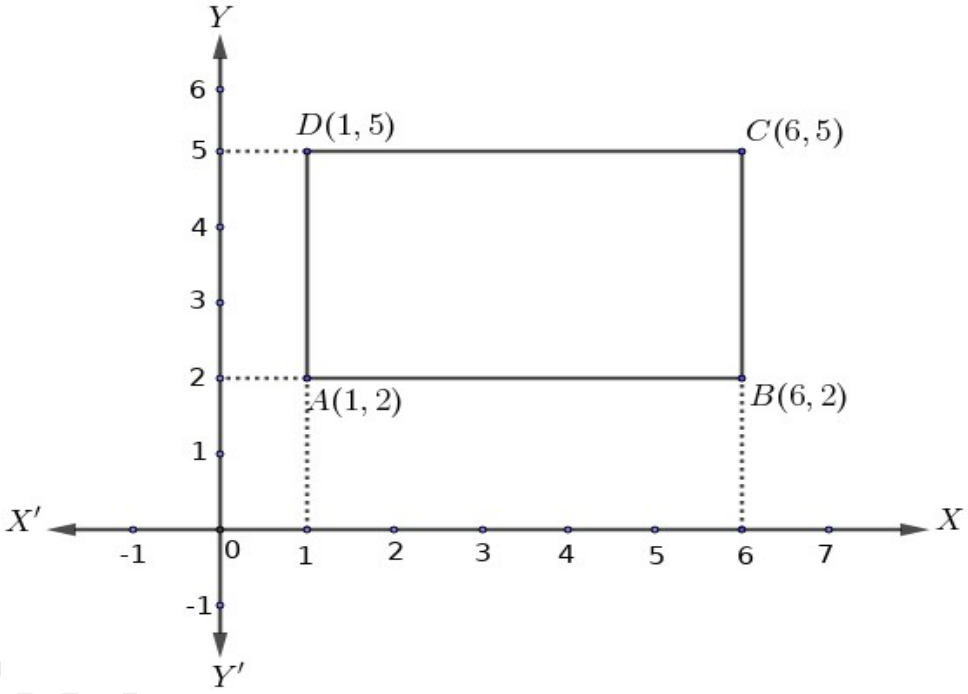
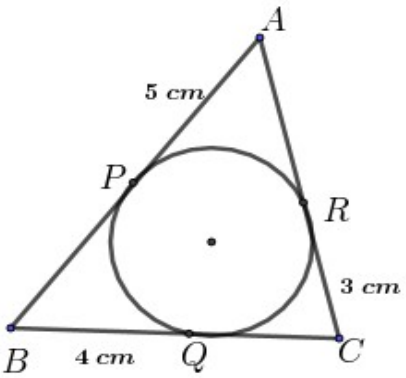
e) What is its algebraic form ?

Answer .

a) $x_5 = \frac{189}{9} = 21$

b) $S_5 = S_4 + x_5 = 44 + 21 = 65$

c) $x_3 = \frac{65}{5} = 13$

	d) $common\ difference = \frac{Term\ difference}{position\ difference} = \frac{21-13}{5-3} = \frac{8}{2} = 4$ **e)** $x_1 = x_5 - 4d = 21 - 4\times4 = 21 - 16 = 5$ **Algebraic form** = $dn + f - d = 4n + 5 - 4 = 4n + 1$
33	**a) Draw the axes and mark the points A (1, 2) , B (6 , 2) , C (6 , 5) and D (1 , 5)** **b) Write the most suitable name for the quadrilateral ABCD ?** **c) Find its perimeter ?**
	Answer . **a)**  **b) Rectangle** **c) Perimeter** = $2\times5+2\times3 = 10 + 6 = 16\ cm$
34	**In the figure the circle touches the sides of the triangle at P , Q and R . AP = 5 cm , BQ = 4 cm , CR = 3cm** **BQ = 4 cm , CR = 3cm .** **a) What is the length of AR ?** **b) What is the length of BC ?** **c) What is the perimeter of the triangle ABC ?** 

Answer .

a) $AR = AP = 5\ cm$ **(The tangents to a circle from a point are of the same length)**

b) $BP = BQ = 4\ cm$ **,** $CQ = CR = 3\ cm$

$BC = 4 + 3 = 7\ cm$

c) Perimeter of the triangle ABC = $AB + BC + AC = 9 + 7 + 8 = 24\ cm$

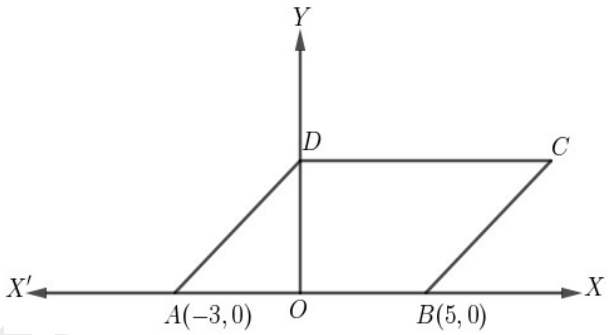
($AB = 5 + 4 = 9\,cm$ **,** $AC = 5 + 3 = 8\,cm$ **)**

35 **In the figure ABCD is a parallelogram and its area is 40 square centimetres .**

a) What are the coordinates of O ?

b) What are the lengths of AB and OD ?

c) What are the coordinates of C and D ?



Answer .

a) $(0\ ,\ 0)$

b) $AB = 8\ cm$

$OD = \frac{40}{8} = 5\ cm$ **(Area = AB x OD)**

c) Coordinates of D = $(0\ ,\ 5)$

Coordinates of C = $(8\ ,\ 5)$

36 **Consider the sequence of two digit numbers which leave a remainder 1 on divisible by 5**

a) What is its common difference ?

b) What are the smallest and the largest numbers in this sequence ?

c)How many two digit numbers are there which leave a remainder 1 on divisible by 5

Answer .

a) Common difference = 5

b) Smallest number = 11

Largest number = 96

c) Algebraic form = $dn + f - d = 5n + 11 - 5 = 5n + 6$

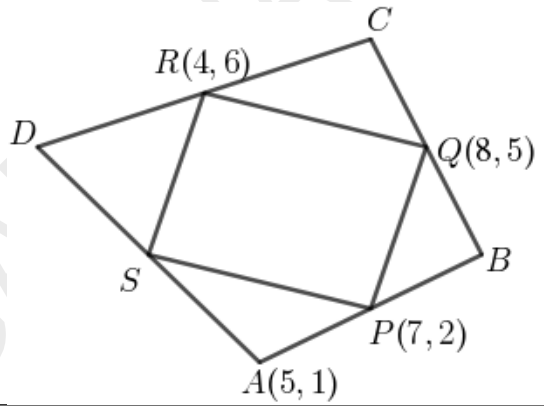
d) $x_n = 96$ ==> $5n + 6 = 96$

$5n = 96 - 6 = 90$ ==> $n = \frac{90}{5} = 18$

37 **In the figure midpoints of the sides of the quadrilateral ABCD are P, Q , R and S ?**

a) What is the most suitable name of the quadrilateral PQRS ?

b) What are the coordinates of S , B , C and D



Answer .

a) Parallelogram

b) Coordinates of S = $(7 + 4 - 8 , 2 + 6 - 5)$ = $(3 , 3)$

c) Coordinates of B = $(9 , 3)$

Coordinates of C = $(7 , 7)$

Coordinates of D = $(1 , 5)$

38 **The base radius and height of a solid metal cone are 5 centimetres and 12 centimetres**

a) What is its slant height ?

b) What is its surface area ?

c) If 10000 such cones are painted and cost of the painting is 10 rupees per square - metre , what will be the total cost ? **(hint :** $\pi = 3.14$ **)**

Answer .

a) $r^2 + h^2 = l^2 \Rightarrow 5^2 + 12^2 = l^2 \Rightarrow 25 + 144 = l^2 \Rightarrow 25 + 144 = l^2$

$l^2 = 169 \Rightarrow l = \sqrt{169} = 13\ cm$

b) Surface area of a cone $= \pi r^2 + \pi r l = \pi \times 5^2 + \pi \times 5 \times 13 = 25\pi + 65\pi$

$= 90\pi\ cm^2 = \frac{90\pi}{10000}\ m^2$

c) Surface area of 10000 cones = $\frac{90\pi}{10000} \times 10000 = 90\pi\ m^2$

Total cost $= 90\pi \times 10 = 90 \times 3.14 \times 10 = Rs\ 2826$

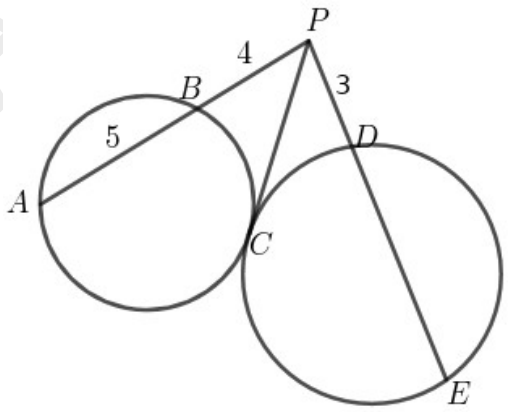
39 **In the figure two circle intersect at C . PC is the common tangent to both the circles.**

AB = 5cm , 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 ?



Answer .

a) $PA = 4 + 5 = 9\ cm$

b) $PA \times PB = PC^2 \Rightarrow 9 \times 4 = PC^2$

$PC = \sqrt{36} = 6\ cm$

c) $PE \times PD = PC^2 \Rightarrow PE \times 3 = 6^2 \Rightarrow PE = \frac{36}{3} = 12\ cm$

$DE = PE - PD = 12 - 3 = 9\ cm$

40 **If** $x^2-10x+16=(x-a)(x-b)$

a) Find $a+b$ **?**

b) Find ab **?**

c) Write $x^2-10x+16$ **as the product of two first degree polynomials ?**

Answer .

a) $a+b=10$

b) $ab=16$

c) $a=8$ **,** $b=2$

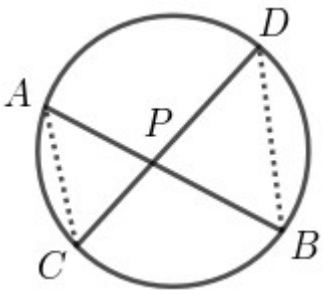
$x^2-10x+16=(x-8)(x-2)$

41 **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 x PB = PC x PD ?



Answer .

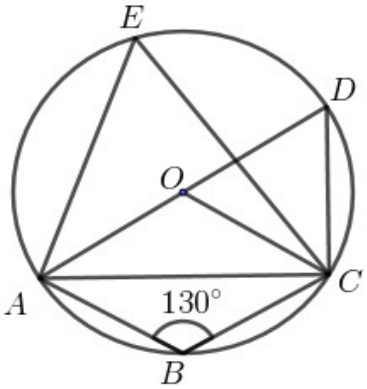
A) $\angle CAB = \angle CDB$ **(Angles made by an arc on its alternate arc are equal)**

b) $\angle ABD = \angle ACD$

c) $\angle APC = \angle BPD$ **(Opposite angles are equal)**

$\frac{PA}{PD} = \frac{PC}{PB}$ **(Since the angles of the triangles APC and BPD are equal , their sides change in the same ratio)**

$PA \times PB = PC \times PD$

42	**Look at the number pattern given below.** **1** **2 3 4** **5 6 7 8 9** **.....** **.....** **a) Write down the next two more lines of this pattern ?** **b) What is the last number in the 9^{th} line ?** **c) What is the first number in the 10^{th} line ?** **d) How many numbers are there in the 10^{th} line ?**
	Answer . **a)** 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 **b)** $9^2 = 81$ **c)** 82 **d)** $2 \times 10 - 1 = 19$
43	**In the figure O is the centre of the circle . $< ABC = 130^0$** **a) What is the measure of $< AEC$?** **b)What is the measure of $< AOC$?** **c) What is the measure of $< ADC$?** **d) What is the measure of $< ACD$?** **e) What is the measure of $< CAD$?** 

Answer .

a) $\angle AEC = 50^0$ **(ABCE is cyclic , opposite angles of a cyclic quadrilateral are supplementary)**

b) $\angle AOC = 2 \times 50 = 100^0$ **( )**

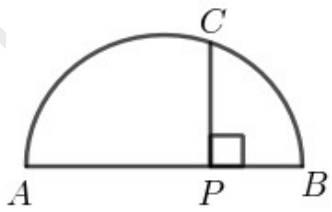
c) $\angle ADC = 50^0$ **(Angles made by an arc on its alternate arc are equal)**

d) $\angle ACD = 90^0$ **(Angle on a semicircle)**

e) $\angle CAD = 40^0$ **(** $\angle ADC = 50^0$ **,** $\angle ACD = 90^0$ **)**

44 **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 . PA is 10 centimetres more than PB . PC = 12 centimetres .



a) PA x PB = ...

b) Write down a second degree equation by taking the length of PB as x .

c) Compute the length of AB ?

Answer .

a) $PA \times PB = PC^2$

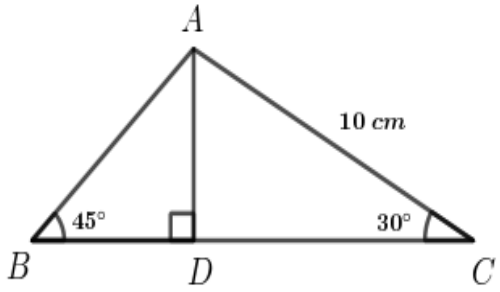
b) $x(x+10) = 12^2$ ==> $x^2 + 10x = 144$

$x^2 + 10x + 5^2 = 144 + 5^2$ ==> $(x+5)^2 = 144 + 25 = 169$

$x + 5 = \sqrt{169} = 13$ ==> $x = 13 - 5 = 8\ cm$

$PB = 8\ cm$, $PA = 10 + 8 = 18\ cm$ ==> $AB = 18 + 8 = 26\ cm$

45 **In the figure** $AC = 10\,cm, < B = 45^0, < C = 30^0$ **.** AD **is perpendicular to** BC



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

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

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

d) What is the ratio of the length of the sides if the ratio of angles of a triangle is

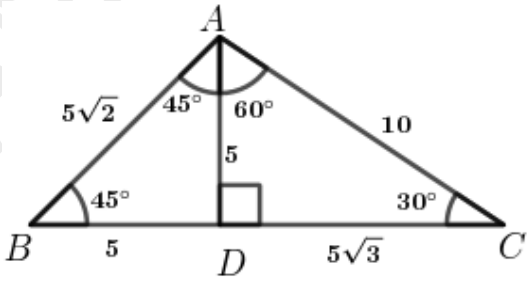
$2:3:7$

Answer .

a) $< BAC = 180 - (45 + 30) = 180 - 75 = 105^0$

b) $AD = 5\ cm$

$(\ AD : CD : AD = 1:\sqrt{3}:2\ )$



c) $CD = 5\sqrt{3}\ cm$

$BD = 5\ cm$

$(\ AD : BD : AB = 1:1:\sqrt{2}\ )$

$AB = 5\sqrt{2}\ cm$

Perimeter of the triangle $ABC = (5 + 5\sqrt{3}) + 5\sqrt{2} + 10 = 15 + 5\sqrt{3} + 5\sqrt{2}\ cm$

d) Ratio of the angles = $2:3:7$ **==> Angles are** 30^0 , 45^0 , 105^0

$AB : AC : BC = 5\sqrt{2} : 10 : 5 + 5\sqrt{3} = \sqrt{2} : 2 : 1 + \sqrt{3}$

$\left(\ \frac{2}{12} \times 180 = 30^0\ ,\ \frac{3}{12} \times 180 = 45^0\ ,\ \frac{7}{12} \times 180 = 105^0\ \right)$