

# MATHEMATICS ASSESSMENT WORKSHEET

GRADE: X

MARK: 80

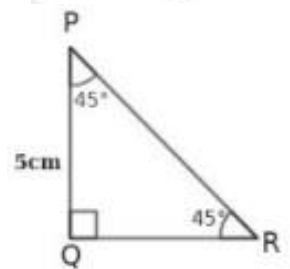
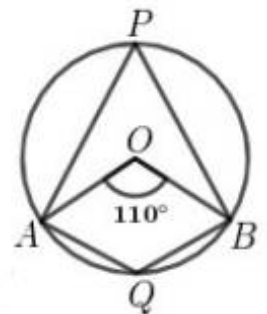
TIME: 2.5 Hr

For questions 1 to 5 one score each (Choose the correct answer from the bracket)

1. Which of the following is a term of the arithmetic sequence 23, 33, 43, .....  
[78, 93, 62, 44]
2. Which is always cyclic quadrilaterals  
[Parallelogram, Square, Trapezium, Rhombus]
3. If 3, x, 13 are three consecutive terms of an arithmetic sequence, the value of x  
[16, 8, 10, 5]
4. How many tangents can we draw from a point outside the circle to the circle  
[4, 3, 2, 1]
5. 5<sup>th</sup> term of an arithmetic sequence is 20 and its 10<sup>th</sup> term is 40, then its common difference is...  
[4, 5, 6, 7]

**Answer any five questions .Each questions carries 2 score**

6. The algebraic form of an arithmetic sequence is  $5n + 3$ 
  - a) What is its common difference?
  - b) What is its first term?
7. In the figure O is the centre of the circle .  $\angle AOB = 110^\circ$ 
  - a) What is the measure of  $\angle APB$  ?
  - b) What is the measure of  $\angle AQB$  ?
8. . 1 added to the product of two consecutive odd numbers gives 256  
What are the numbers ?
9. In  $\Delta PQR$  ,  $\angle Q = 90^\circ$  ,  $\angle R = 45^\circ$  and  $PQ = 5\text{cm}$ 
  - a) What is the length of QR?
  - b) What is the length of PR?
10. A box contains 6 black and 4 white balls, if a ball is taken from it
  - a) What is the probability of it being black?
  - b) What is the probability of it being white?
11. There is a point 13 cm away from the centre of a circle of radius 5 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 ?



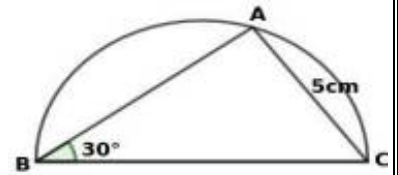
**Answer any five questions .Each questions carries 3 score**

12. Consider the arithmetic sequence 1, 6, 11, .....
  - a) What is its common difference ?
  - b) What is its 20th term ?
  - c) What is its algebraic form ?

- 13.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  $x^2 + 12x = 64$
14. Each letter of the word " STATEMENT " 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 T ?  
 b ) What is the probability of not getting the letter T ?

15. In the figure , BC is diameter of the semi circle  $\angle B = 30^\circ$  AC = 5 cm

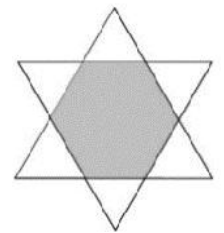


- a) What is the measure of  $\angle BAC$  ?  
 b) What is the radius of the semicircle?

16. The vertices of a triangle are A(1,9) , B(4,6) and C(3,11)

- a) What is the length of AB  
 b) What is the length of BC  
 c) Prove that ABC is a right triangles

17. A regular hexagon is formed by two overlapping equilateral triangles as shown in the figure. A fine dot is placed into the figure without looking into it .



What is the probability of being the dot inside the shaded region ?

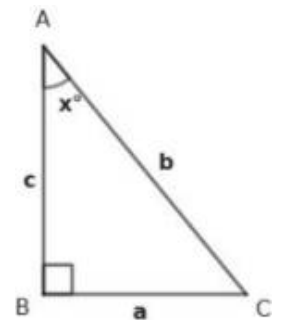
**Answer any five questions .Each questions carries 4 score**

18. Find the following sums.

- a)  $1 + 2 + 3 + 4 + 5 + \dots + 15$   
 b)  $2 + 4 + 6 + 8 + 10 + \dots + 30$   
 c)  $5 + 7 + 9 + 11 + 13 + \dots + 33$   
 d)  $8 + 13 + 18 + 23 + 28 + \dots + 78$

19. Draw a triangle of circumradius 4cm and two angles  $50^\circ$  and  $60^\circ$

20. In  $\triangle ABC$ ,  $\angle B = 90^\circ$  ,  $\angle A = x^\circ$ , Length of sides BC, CA and AB are a, b, c respectively



a) Which among the following is  $\tan x^\circ$

$$\left[ \frac{c}{a}, \frac{a}{c}, \frac{c}{b}, \frac{a}{b} \right]$$

b) Write  $\sin x^\circ$  and  $\cos x^\circ$  from  $\triangle ABC$

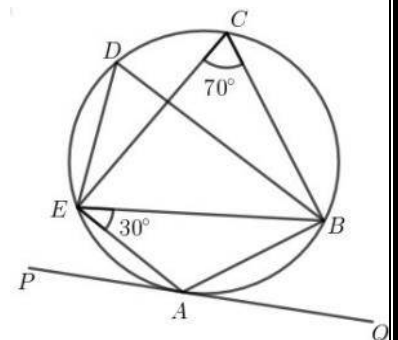
c) Prove that  $\frac{\sin x}{\cos x} = \tan x$

21.a) Draw the coordinate axes and mark the following points.

A ( 2 , 4 ) , B ( -1 , 3 ) , C ( - 1 , - 1 ) , D ( 2 , -3 ) ?

b) What is the most suitable name of the quadrilateral ABCD ?

22. In the figure PQ is a tangent . BE = CE  $\angle AEB = 30^\circ$  ,  $\angle BCE = 70^\circ$



- a) What is the measure of  $\angle BDE$  ?  
 b) What is the measure of  $\angle BAE$  ?  
 c) What is the measure of  $\angle BAQ$  ?  
 d) What is the measure of  $\angle PAE$  ?

23. The sum of first  $n$  terms of an arithmetic sequence is  $n^2 + 2n$

- a) What is the first term?
- b) Find the common difference.
- c) What is the sum of continuous term starting from the first of the sequence 3, 5, 7, ..... added to 1 gives a perfect square

**Answer any six questions .Each questions carries 5 score**

24. Look at the number pattern given below

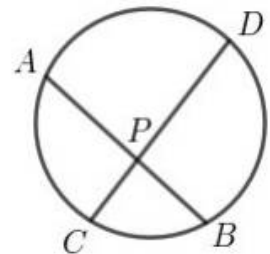
1  
2 3  
4 5 6  
7 8 9 10

.....  
.....

- a) Write down the next two more lines of this pattern?
  - b) How many numbers are there in the 12<sup>th</sup> line ?
  - c) What is the last number in the 11<sup>th</sup> line ?
  - d) What is the first number in the 12<sup>th</sup> line ?
  - e) What is the sum of the numbers in the 12<sup>th</sup> line ?
25. Draw a rectangle of width 5 cm and height 3 cm. Draw a square of the same area
26. In the figure two chords AB and CD intersect at P .

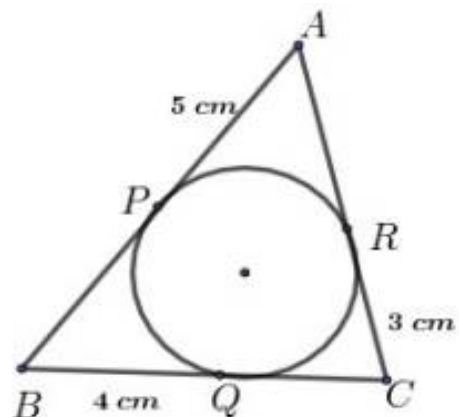
PA = 8 cm , AB = 14 cm , PD = 12 cm

- a) What is the length of BP ?
  - b)  $PC \times PD = \dots\dots\dots$
  - c) What is the length of PC ?
27. The perimeter of a rectangle is 28 cm and its diagonal is 10 cm .
- a) What is the sum of its width and height ?
  - b) If the width is taken as  $7+x$  , then the height = -----
  - c) What are the length of its sides ?



28. 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 ?



29. A man standing away from the bottom of a tower sees its top at an angle of elevation of  $60^\circ$ .

Standing back by 100 metres, he sees it at an angle of elevation of  $30^\circ$ .

- a) Draw a rough figure based on the given details
- b) What is the height of the tower?

30. The sum of 1<sup>st</sup> and 20<sup>th</sup> terms of an arithmetic sequence is 88

- a) What is the sum of 2<sup>nd</sup> and 19<sup>th</sup> terms
- b) If 10<sup>th</sup> term is 42, what is the 11<sup>th</sup> term?
- c) What is the common difference of the sequence?
- d) What is the first term?