

(3 x 2 = 6)

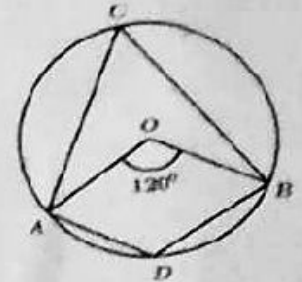
Answer any 3 questions from 1 to 4. Each question carries 2 scores

1. Consider the arithmetic sequence 5, 7, 9, ...
- What is its common difference?
  - What is its 10<sup>th</sup> term?

2. Each letter of the word "ASSESSMENT" is written on paper slips and put in a box. A slip is to be drawn from it

- What is the probability of getting the letter S? *2/5*
- What is the probability of not getting the letter S? *3/5*

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



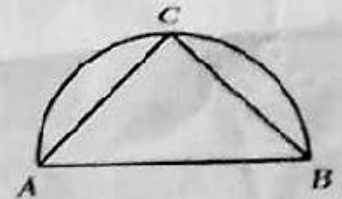
- What is the measure of  $\angle ACB$ ?
- What is the measure of  $\angle ADB$ ?

4. When each side of a square is increased by 1 metre, the area becomes 225 square metres. What was the length of a side of the original square?

(4 x 3 = 12)

Answer any 4 questions from 5 to 10. Each question carries 3 scores

5. In the figure, AB is the diameter of the semicircle.



- What is the measure of  $\angle ACB$ ? *90*
- Draw an isosceles right triangle of hypotenuse 7 centimetres.

- Write an arithmetic sequence of common difference 3.
- Can the difference of any two terms of this sequence be 100? Why?

7. In the figure a circle touches the sides of a square.



- If the length of a side of a square is 8 centimetres, what will be the diameter of the circle?
- If we put a dot without looking, what is the probability of it being in the shaded part?

8.  $x$  is a natural number.

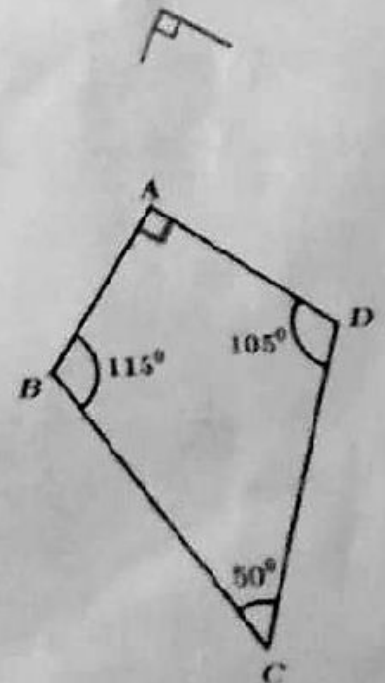
- What number is to be added to  $x^2 + 8x$  to get a perfect square? *16*
- If  $x^2 + 8x = 240$ , find the natural number denoted by  $x$ .

9. Compute the sums of the following arithmetic sequences.

- $1 + 2 + 3 + \dots + 10$
- $4 + 8 + 12 + \dots + 40$
- $5 + 9 + 13 + \dots + 41$

10. Consider the quadrilateral shown in the picture.

- What is the measure of  $\angle A$ ?
- If a circle is drawn with BD as diameter, where will be the position of A?  
 (inside the circle, on the circle, outside the circle)
- If a circle is drawn through B, C and D, where will be the position of A?  
 (inside the circle, on the circle, outside the circle)

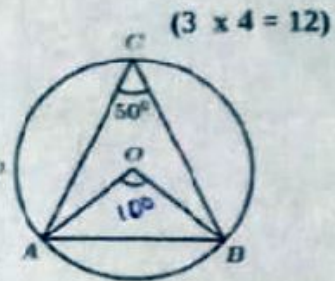




Answer any 3 questions from 11 to 15. Each question carries 4 scores

11. In the figure, O is the centre of the circle.

- a) What is the measure of  $\angle AOB$ ?
- b) Draw a triangle of circumradius 3 centimetres and two of the angles  $50^\circ$  and  $60^\circ$



12. 5<sup>th</sup> term of an arithmetic sequence is 21 and its 10<sup>th</sup> term is 41.

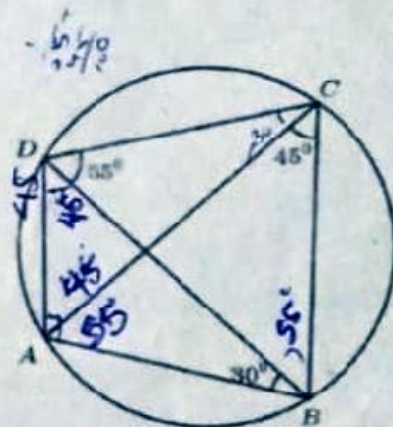
- a) What is its common difference?
- b) What is its 6<sup>th</sup> term?
- c) What is the sum of the first 11 terms of this sequence?

13. In class 10 A, there are 20 boys and 30 girls. In class 10 B, there are 25 boys and 20 girls. One student is to be selected from each class.

- a) What is the total number of pairs?
- b) What is the probability of both being boys?
- c) What is the probability of one boy and one girl?
- d) What is the probability of at least one girl?

14. Compute the measures of the following angles from the figure.

- a)  $\angle ADB$
- b)  $\angle CBD$
- c)  $\angle BAD$
- d) Central angle of the arc DAB



15. Among three consecutive terms of an arithmetic sequence of common difference 3, the product of the first and last terms is 160.

- a) Among three consecutive terms of this arithmetic sequence, if the middle term is taken as  $x$ , what will be the other terms?
- b) Find the terms.

Answer any 2 questions from 16 to 18. Each question carries 5 scores

(2 x 5 = 10)

- 16. a) Draw a rectangle of length 5 centimetres and breadth 3 centimetres.
- b) Draw a square of the same area.

17. Consider the arithmetic sequence 7, 13, 19, ...

- a) What is its common difference?
- b) Write its algebraic form.
- c) What is the sum of the first 10 terms of this sequence.
- d) How much more is the sum of the first 10 terms of an arithmetic sequence of algebraic form  $6n + 2$  than the sum of the first 10 terms of this sequence?

18. Look at the number pattern give below.

$$1^3 = 1^2$$

$$1^3 + 2^3 = (1 + 2)^2$$

$$1^3 + 2^3 + 3^3 = (1 + 2 + 3)^2$$

$$1^3 + 2^3 + 3^3 + 4^3 = (1 + 2 + 3 + 4)^2$$

$$1^3 + 2^3 + 3^3 + 4^3 + 5^3 = (1 + 2 + 3 + 4 + 5)^2$$

a) Write the next two more lines of this pattern.

b)  $1^3 + 2^3 + 3^3 + 4^3 + \dots + 10^3 = \dots$

c)  $\frac{1^3 + 2^3 + 3^3 + 4^3 + \dots + 25^3}{(1 + 2 + 3 + 4 + \dots + 25)^2} = \dots$

d)  $1^3 + 2^3 + 3^3 + 4^3 \dots + n^3 = \dots$