MATHEMATICS

Time : 2 Hours 30 Minutes   **Score : 80**

Questions 1 to 6 answer any 4 questions ((4x1=4)

1   In $\triangle ABC$, $<C = 110°$. If we draw a circle with diameter AB, what will be the position of C?

   (On the circle, outside the circle, inside the circle)

2   O is the center of the circle and B a point out side the circle. AB is a tangent from the point B. In triangle OAB find angle A

3   Square of a number is 25, what are the numbers

4   write the coodinates of orgin

5   Write the co-odinates of the mid point of line joining points (3, 4) (7,6)

6   From acircle of radius 10 cm ,a sector of central angle $45°$ is cut out and made in to a cone. what is the slant hight of the cone

Questions 7 to 10 answer all questions

7   What is the height of a square pyramid with base edge 6cm and the lateral edge 5cm

8   0 is the Center of the circle PA and PB is the tangent of the circle from the point p. $<p = 70°$ Then find $< AOB$

9   Tan A=1 Write A

   $(30°, 45°, 60°, 90°)$

10    $x^2 + 1 = 17$ Write the value of x

   $(16, 18, 4, 1)$

Questions 11 to 15 answer any 3 questions (2x2=4)

11   Write a number sequence with number on units place 1. What is the largest 2 digit term of this sequence?

12   AB, CD are the 2 chords of a circle, intersect at P. AB =11cm, PA =8cm, PC = 6 CM. Find the lengths of PB and PD

13
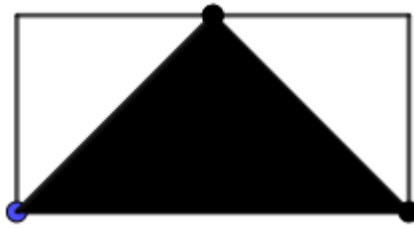
Area of the rectangle is 20 square centimeter

a) Find the area of black region   (1)

b) If you shut your eyes, you put a dot in this rectangle, what is probability that would be in black region   (1)

14   The algebraic form for sum of n terms of an arithmetic sequence is

a) Write the first term.

b) Write the common difference.

c) Write the sequence.

d) Find the sum of first 10 terms of this sequence.

15   In Triangle ABC < B = 90° SinA = 3/5

(a) Draw the picture

(b) Find cos A

Questions 16 to 18 answer any 2 questions (2x2=4)

16   Inradius of a triangle is 2 cm and circumference is 30 cm. Find area of the triangle.

17   Number from 1 to10 are written on slips of paper and put in to box . One slip is to be taken from each box

(a)calculate the number of all pairs of number

(b) what is the probablity of getting both numbers as perfect squares

18   The product of two consecutive even numbers is 168

a)If first number is x , what is the next even number?

b)Using the above datas write a second degree equation.

Questions 19 to 23 answer any 3 questions (3x4=12)

19   Find the sum of the following

a) 1+2+3+........+20   (1mark)

b) 4+8+12+........+80   (1mark)

c) 7+11+15+...........+83   (1mark)

d) 5+9+13+......81   (1mark)

20   There are 10 blue balls and 5 red balls in a box, 6 blue balls and 7 red balls in another.

a)What is the probability that getting one blue ball in first box? If it will be red?

b) What is the probability of getting one blue ball in second box?

c) If all balls are put in a single box, what is the probability of getting 1 blue ball?

21   The length of a rectangle is 4 cm more than its breadth. The area of the rectangle is 357 sq.cm.

a) if breadth is 'x' cm, what is its length?

b) Write an algebraic equation to express the relation between area and sides of the rectangle.

c) Find the length and breadth of the rectangle.

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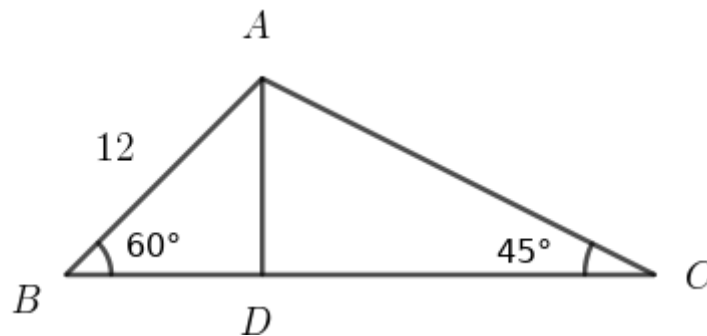
In triangle ABC, AD is the altitude to BC.If AB equal to 12 cm ,

a) Find length of AD.

b) Find length of AC.

c) Calculate BC.

d) Find area of the triangle AB

23   A sector is cut from a circular sheet and rolled to make a cone. The radius of the cone is 10 cm and slant height is 25 cm.

a) Find the radius of the circular sheet.

b) Calculate the central angle of the sector used to make the cone.

c) Calculate the central angle of the remaining sector.

d) Find the radius of the cone made by rolling the remaining sector

Answer any 1 question 24 to 25 (1x4=4)

24   When the sun is at an elevation of 40° , the length of the Shadow of a flag staff is 15 m.

(a) Draw the figure

(b) When sun is at elevation of 45° , what is the height of flag staff
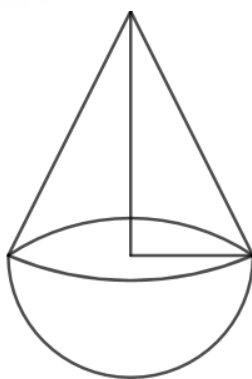
(Sin 40 = 0.64. Tan 40 = 0.84)

25   The Perimeter of the base of Square Pyramid is 24 cm, Calculate

(a) base edge

(b) Slant height

(c) Total Surface area

Questions 26 to 29 answer any 3 questions (3x6=18)

26   a) Draw a circle with radius 4 cm   (1)

b) Draw a triangle with the angles60°, 70° and corners of the triangle are on the circle   (4)

c) Measures the lengths of the sides of the triangle   (1)

27

A hemisphere and a cone of same radius is combined as in the figure.Radius of the hemisphere is 9 cm and total height of the combined solid is 21 cm.

a) Find height of the cone.

b) Calculate volume of the hemisphere.

c) Find volume of the cone.

d) Find total volume of the combined solid.

28   a) Draw a rectangle with sides 6cm and 4cm   (1)

      b) Draw a square with the same of the rectangle   (5)

29   Consider an equilateral triangle of side 10 cm,

      a) Calculate the altitude of this triangle.

      b) Draw a square having one side as this altitude.

      c) Find area of this square.

      d) Calculate the length of one diagonal of this square.

Questions 30 to 32 answer any 2 questoins(2x6=12)

30   (a) Find the equation of the line Joining the points(3,5) (1,2)

      (b) Find the coodinates of the point of this line intersect at x axis

31   (a) Draw a triangle of sides 7 cm , 6 cm 5 cm

      (b) Draw the incircle of the triangle

      (c) Calculate the radius of incircle

32   The algebraic form for sum of n terms of an arithmetic sequence is $4n^2+3n$

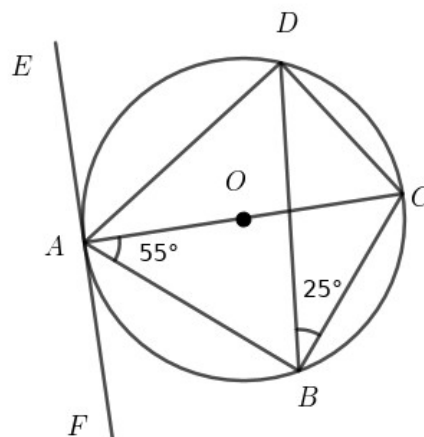   a) Write the first term.

      b) Write the common difference.

      c) Write the sequence.

      d) Find the sum of first 10 terms of this sequence.

**Questions 33 to 35 answer any 2 questions(2x8=16)**

33

In the figure, O is the center and EF is tangent through the point A to the circle. <BAC=55°, <CBD=25°.Find the angles following

a) <ADC

b) <ADB

c) <ACB

d) <CAD

e) <ABD

f) <ACD

g) <EAB

h) <DAF

34 Consider the Arithmetic sequence 4,7,10,13.....

a) Write the next term and the common difference.

b) Check whether 105 is a term of the sequence. Why?

c) Write the algebraic form of this sequence.

d) Find the 20th term of the sequence.

e) Calculate the sum of the first 20 terms of the sequence.

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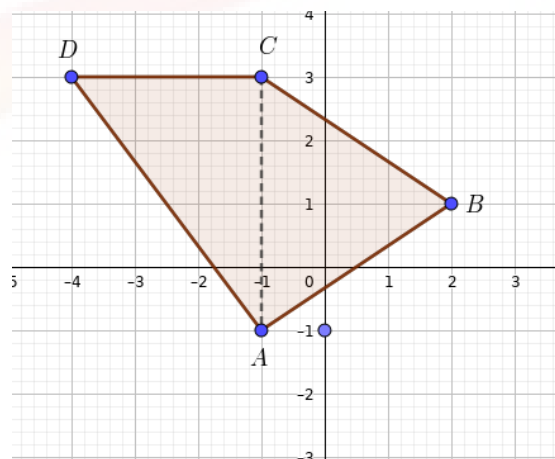
In the figure ABCD is a quadrilateral.

a) Write the coordinates of A,B,C,D.   (2)

b) Find length of the diagonals AC and BD.   (2)

c) Calculate area of the triangle ABC.   (2)

d) Calculate area of the quadrilateral ABCD.   (2)