Summative Assessment II - (2014 - 15)

HOLY MISSION HIGH SCHOOL

[Affiliated to C.B.S.E, Delhi] upto +2 Level
SAMASTIPUR - 848101

Set - A **MATHEMATICS** **Class – IX** Code:- **N2AML6K**

Question numbers **1** to **4** carry **one** mark each.

1 The cost of petrol in a city is ₹ 70 per litre. Find a linear equation in two variables where y represents number of litres of petrol consumed and ₹ x is total cost. 1

2 If the graph of $2x + ky = 10k$, intersects x-axis at (2, 0), find k. 1

3 Why we cannot construct a triangle of given sides as 5 cm, 5 cm and 10 cm ? 1

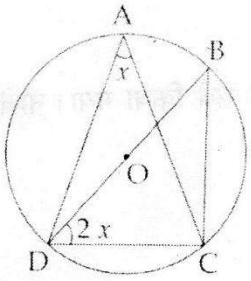
4 How many balls, each of radius 2 cm can be made from a solid sphere of lead of radius 8 cm? 1

Question numbers **5** to **10** carry **two** marks each.

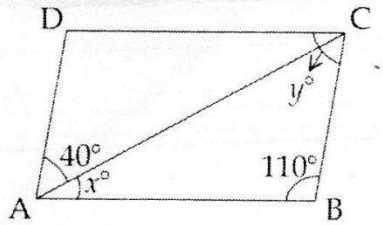
5 P and R are point on side CD of a parallelogram ABCD. Show that 2

(i) ar (ΔPAB) = ar (ΔRAB) (ii) If ar (ΔPAB) = 8 cm^2, find ar (ABCD).

6 In the given figure, O is the centre of the circle. Find the value of x. 2



7 In the figure, ABCD is a parallelogram with $\angle B = 110°$. Find the values of x and y. 2



8 A cone is 8.4 cm high and the radius of its base is 2.1 cm. It is melted and recast into a sphere. Find the radius of sphere. 2

9 To know the opinion of the students about the subject statistics, a survey of 200 students was conducted. The data recorded is as given below :

Opinion	Number of students
Like	135
Dislike	65

Find the probability that a student chosen at random

(i) likes statistics. 2

(ii) dislikes statistics.

10 A dice is rolled 150 times and its outcomes are recorded as below : 2

Outcome	1	2	3	4	5	6
Frequency	25	30	15	28	32	20

Find the probability of getting :

(i) An odd number (ii) A multiple of 4

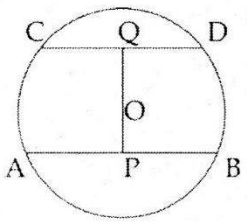
Question numbers 11 to 18 carry three marks each. SECTION-C

11 The cost of a toy horse is same as that of cost of 3 balls. Express this statement as a linear equation in two variables. Also draw its graph. 3

12 Express y in terms of x for the equation $4x + 7y = 14$. Check which of the points (0, 2), $(\frac{7}{2}, 0)$ and (2, 1) lie on the graph of this equation. 3

13 In ΔDEF, M and N are mid - points of sides EF and DE respectively. If ar $(\Delta EMN) = 4\ cm^2$, find ar (ΔDEF). 3

14 In the figure, AB and CD are two parallel chords of a circle with centre O and radius 5 cm such that AB = 8 cm and CD = 6 cm. If OP is perpendicular to AB and OQ is perpendicular to CD, determine the length of PQ. 3



15 Draw lines PQ and RS intersecting at point K. Measure a pair of vertically opposite angles. Bisect them. Are the bisecting rays forming a straight line ? 3

16 In the figure, XYZ is a triangle, right angled at Y. A line is drawn through the mid-point M of hypotenuse XZ which parallel and YZ to intersects XY at N. Show that 3

(i) N is mid-point of XY (ii) $YM = XM = \frac{1}{2} XZ$

17 The surface area of the sphere of radius 5 cm is five times the curved surface area of a cone of radius 4 cm. find the volume of the come. 3

18 In the given figure, ABCD is a parallelogram and the point P bisects the base AB. Prove that ar $(\Delta CPB) = \frac{1}{4}$ ar (ABCD). 3

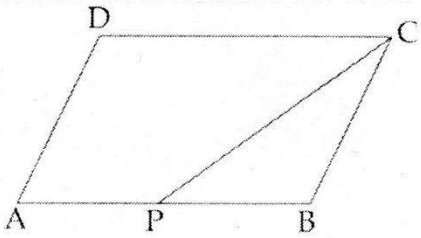
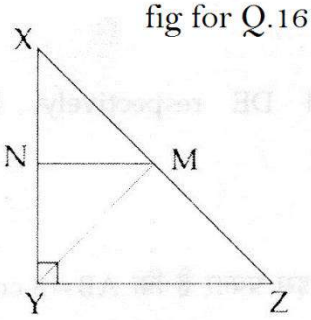


fig for Q.16

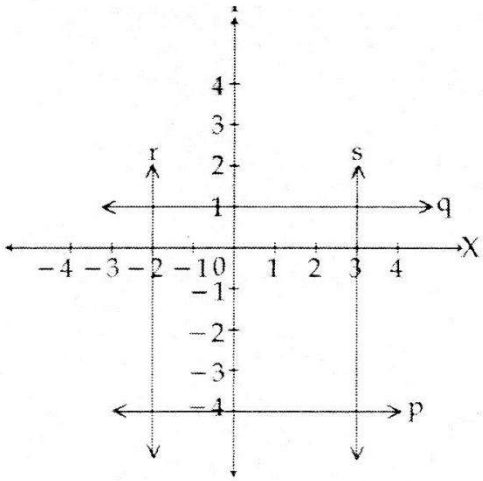


Question numbers 19 to 28 carry four marks each. SECTION-D

19 Draw the graphs of the following equations on the same graph sheet : 4

$x = 4, x = 2, y = 1, y - 3 = 0.$ Also, find the area enclosed between these lines.

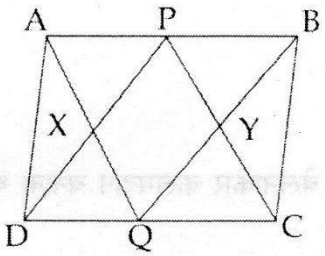
20 Write the equation of the lines drawn in following graph. Also, find the area enclosed between them. 4



21 In the figure, APCQ and PBQD are parallelograms. Show that if AD||BC, then : 4

(i) quadrilateral ABCD is a parallelogram

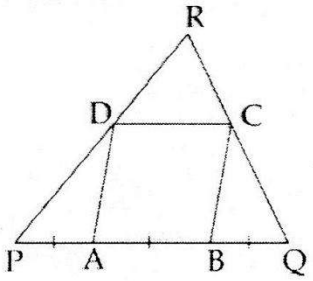
(ii) ar(PXQ) = ar(PYQ)



22 In a triangle ABC, if $\angle A = 60°$ and the altitudes from B and C meet AC and AB at P and Q respectively and intersect each other at I. Prove that APIQ and PQBC are cyclic quadrilaterals. Hence, find the measure of $\angle BIC$. 4

23 Construct ΔMON, if ON = 5.2 cm, MO + ON = 10 cm and $\angle O = 50°$. 4

24 In the figure, ABCD is a rhombus whose side AB is produced to points P and Q such that AP = AB = BQ. PD and QC are produced to meet at a point R. Show that $\angle PRQ = 90°$. 4



25 In a Govt. school, the teacher organised a competition in which students were asked to use cordboard for making cylindrical penstands of radius 4 cm and height 25 cm.

(a) To supply the cardboard to the 350 competitors, find the cost of cardboard required if cost of 1 m^2 is ₹ 1.5 ? These penstands will be sold and amount so collected will be donated to PM reeling fund.

(b) What value is depicted in this context ?

26 The cost of painting the total outside area of a closed cylindrical tank at Rs. 6 per sq m is Rs. 237600. The height of the tank is 6 times the radius of the base of the tank. Find the radius and the height of the tank. 4

27 A right triangle ABC with sides 5 cm, 12 cm and 13 cm is revolved about the side 5cm. Find the volume of the solid so obtained. If it is now revolved about the side 12 cm, then what would be the ratio of the volumes of the two solids obtained in two cases ? 4

28 A recent survey found that the ages of workers in a factory is distributed as follows :

Ages	14 - 23	24 - 33	34 - 43	44 - 53	54 and lbove
No. of Workers	38	27	86	46	3

If a worker is selected at random, find the probability that the age of the worker is :

(i) 44 years or more
(ii) under 43 years
(iii) in age group of 34-53 years.
(iv) under 54 but over 34 years

SECTION-E 'Open Text'

(* Please ensure that open text of the given theme is supplied with this question paper.)

Theme : Atithidevo Bhavah

29 Refer to Table-2 and answer the following questions : 3

(i) What is the difference in FTAs from Europe and Australia for the year 2012 ?

(ii) What is the difference in FTAs from America and Africa for the year 2012 ?

(iii) What was the FTA from Asia in the year 2012 ?

30 Draw a bar graph to represent the number of FTAs from different regions of the World (in lakhs approximately) during the year 2011. 3