Yearly Examination, 2015-16
## Class - 9 IX
### Subject : Mathematics

Time : 3.15 Hrs.   M.M. : 100

Introductions :

(i) All questions have to attempt compulsority.

(ii) Maximum marks for each question given against it.

(iii) Student must write their roll no. on question paper.

(iv) Answers write in answer-book only.

1. Find four rational numbers between 3 and 4.   1

2. Write Euclid's first Postulate.   1

3. In figure lines PQ and RS intersect each other at point 0. If $\angle POR : \angle ROQ = 4 : 8$. Find all angles.   1
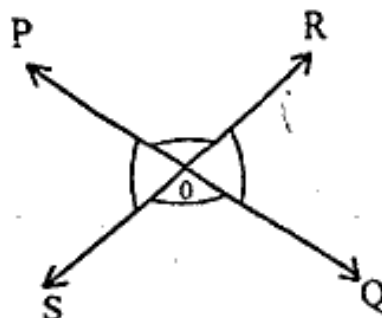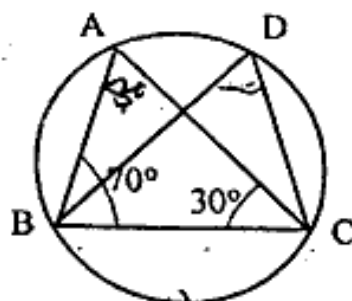

4. Write ASA Congruence rule of triangles.   i

5. In figure find x and y.   1
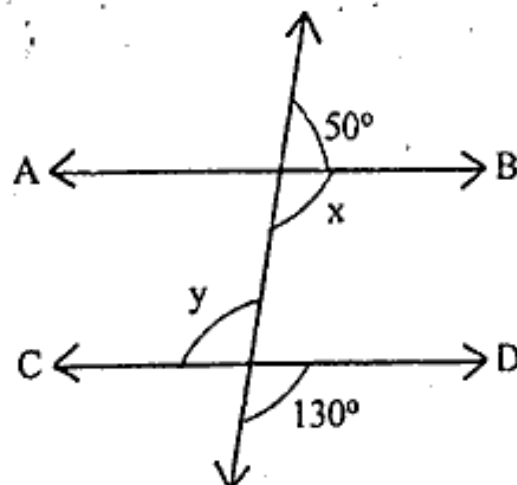
6. What is the serial in trafic lights.

7. ABC and DBC are two isosceles triangles on the same base BC. Show that $\angle ABD = \angle ACD$ 2

8. In figure $\angle ABC = 70°$ and $\angle ACB = 30°$ find $\angle BDC$.   2

9. The angles of a quadrilateral are in the ratio $3 : 5 : 9 : 13$. Find all the angles of quadrilateral.   2

10. Find area of triangles having sides 60m, 100m and 140m.   2

11. Construct the angles of the following measurements—   2
   (i) $15°$ (ii) $105°$

12. Rationalise the denominators of $\dfrac{1}{\sqrt{5}-2}$ 3

13. Evaluate the following products without multiplying directly—
   (i) 105×95 (ii) 96×97 4

14. Three coins were tossed 30 times simultaneously. Each time the number of heads occuring was noted down as follows—   3

   0   1   2   2   1   2   3   1   3   0   1   3   1   1   2

   0   1   2   1   3   0,   0   1   1   2   3   2   2   1   2   12

   Prepare a frequency distribution table for the data given above.

15. Evaluate the value of $20\text{cm} \times 18\text{cm}$ two rectangular boards at the rate Rs. 10/Sq. cm   3

16. In which quadrant or on which axis do each ot the points lie? 4
   $A(-3, 4)$ $B(3, -2)$ $C(1, 0)$ $D(-3, -4)$

17. Express the following linear equations in the form $ax + by + c = 0$ and indicate the value of a, b and c.   4
   (i) $4 = 5x - 3y$ (ii) $x = 3y$

18. Find four different solutions of the equation—   4
$$x + 3y = 6$$

19. The Taxi fare in a city is an follows : for the first Kilometer, the fare is Rs. 8 and for the subsequent distance it is Rs. 4 per km. Taking distance covered as x km. and the fare as Rs. y write a linear equation for this information.   4

20. Construct a triangle ABC in which BC = 7 cm., $\angle B = 75°$ and AB + AC = 13cm.   4

21. Construct a right angle triangle whose base is 12cm and the sum of its hypotenuse and other side is 18cm.   4

22. The floor of a rectangular hall has a perimetre 250m. If the cost of painting the four walls at the role of Rs. 10 per m^2 is Rs. 15,000. Find the height of the hall.   4

23. The cylindrical Pillar is 25cm. radius and 3.5m height. Find the cost of painting the curved surface of the pillar at the rate of Rs. per m^2.   4

24. Write formulae of the followings—   4
    (i) Total surface area of a cube
    (ii) Volume of the cylinder.
    (iii) Total surface area of a right circular cone.
    (iv) Surface area of a sphere.

25. A hamisphere bowl made of brass has inner diameter 10.5cm. Find the cost of tin plating it on the inside at the rate of Rs. 20 per $100cm^2$.   4

26. Draw the graph of the linear equation—   6
$$x + y = 7$$

27. If E, F, G H are respectively the mid points of the sides of a parallelogram ABCD, show that—
$$\text{ar (EFGH)} = ½ \text{ ar (ABCD)}$$

28. Give the geometric representation of $2x + 9 = 0$ as an equation—
    (i) in one variable   (ii) in two variables

29. If costs Rs. 2200 to point the inner curved surface of a cyclindrical vessel 10m. deep. If the cost of painting is at the rate of Rs. 20 per m^2 find—
    (i) inner curved surface area of the vessel.
    (ii) radius of the base.
    (iii) capacity of the vessel.

Or

A dome of a building is in the form of a hemisphere from inside. It was whitewashed at the cost of Rs. 498.96. If the cost of white-washing is Rs. 2.00 per m² find—

(i)   inside surface area of the dome.

(ii)   volume of the air inside the dome.

30.   The slant height and base of a conical tomb are 25m and 14m respectively. Find the cost of white washing its curved surface at the rate of Rs. 210 per 100m².

Or

A solid cube of a side 12cm. is cut into eight cubes of equal volume. What will be the side of the new cube. Also find the ratio between their surface areas.

□□□