Sample Paper – 2012   Mathematics   Class – IX   FM: 80

SECTION - A

1. One angle is equal to four times of its supplement. The measures of the angle are:

(a) 36° (b) 108° (c) 144° (d) 90°

2. Rationalization factor of $\dfrac{1}{\sqrt{7} - \sqrt{4}}$ is :

(a) $\sqrt{7} + \sqrt{4}$ (b) $\sqrt{7} - \sqrt{4}$ (c) $\sqrt{4} - \sqrt{7}$ (d) 3

3. If equals are subtracted from equals, then the remainders are :

(a) equal   (b) unequal   (c) less   (d) greater

4.The number in which all the digits after the decimal point are repeated is called: (a) rational number   (b) terminating decimal

c) recurring decimal   (d) negative rational

5. In $\triangle ABC, AB = 4cm, BC = 5cm$ and CA = 6 cm, then:

(a) $\angle B > \angle A > \angle C$ (b) $\angle A > \angle B > \angle C$ (c) $\angle B > \angle C > \angle A$(d) $\angle C > \angle A > \angle B$

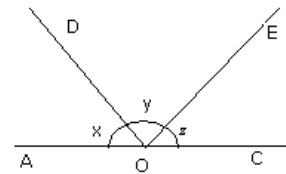**6**.   If two supplementary angles are in the ratio 3:7, then angles are:

(a) 36˚,108˚   (b) 54˚, 126˚ (c) 27˚,153˚ (d) 60˚, 120˚

7.   If two right-angled triangle ABC and DEF are right-angled at $\angle$ B and $\angle$ E respectively are congruent by RHS, then:

(a) AC=DF, AB=DE (b) AC=DF,BC=DE (c) AC=EF, AB=DE (d) AB=DF, BC=EF

8. In the given figure, if $\dfrac{y}{x}$ =5 and $\dfrac{z}{x}$ =6, then value of x is:

(a) 12°   (b) 18°   (c) 15°   (d) 20°

9. If $x^2 + \dfrac{1}{x^2} = 7$, then $x = \dfrac{1}{x}$:

(a) 2   (b) 3   (c) 4   (d) 5

10. $3^3 + 8^3 - 11^3 =$
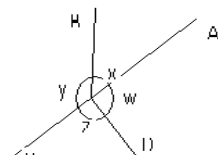
(a) 792   (b) 892   (c) -792 (d) -892

SECTION-B

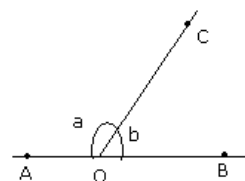**11**.Find the remainder when $x^3 + ax^2 - 6x + a$ is divided by $x + a$

12. Represent $\sqrt{2}$ on the line

13. Simplify $(25)^{-1/3}$ X $\sqrt[3]{16}$.

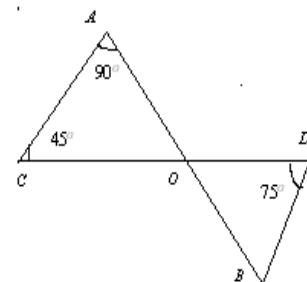**14**. In given figure, if x+y=w+z, then prove that AOB is a line.

15. In the given figure, $\angle$ AOC and $\angle$ BOC form a linear pair and a-b=70°, find the value of a and b.
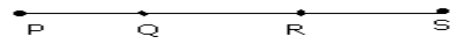
16. AD is an altitude of $\triangle$ ABC in which AB=AC. Show that AD bisects $\angle$ A.

17. In the given figure, if lines AB and CD intersect At O such that $\angle$ ACO=45˚, $\angle$ OAC=90˚ and $\angle$ ODB=75˚, find $\angle$ OBD.

18. In the given figure, if Q is mid-point of PR and R is mid-point of QS, then show that QR = $\frac{1}{3}$ PS.

19. If $\dfrac{\sqrt{2} + \sqrt{3}}{\sqrt{18} - \sqrt{12}} = a - b\sqrt{6}$, find the values of a and b.
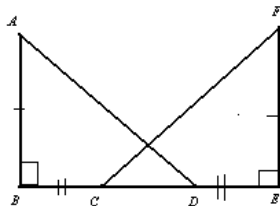
20. Visualize the representation of 4.$\overline{36}$ on the number line.

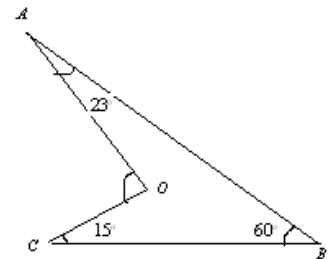21. If $2^{a-7} \times 5^{a-4} = 1250$, find the value a.

22. Find the value of $64x^3 - 125y^3, if\ 4x - 5y = 16$ and $xy = 12$.

23. Simplify ($2x - y + 3z)(4x^2 + y^2 + 9z^2 + 2xy + 3yz - 6zx)$.

24. In fig., it is given that AB = FE, BC = ED, AB $\perp$ BD and FE $\perp$ EC. Prove that $\Delta ABD \cong \Delta FEC$.
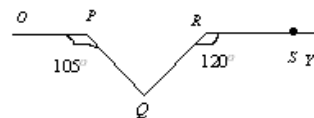
25. Find the value of $\angle$AOC in the given figure.

26. The sides of a triangle are in the ration of 13 : 14 : 15 and its perimeter is 84 cm. Find the area of the triangle.
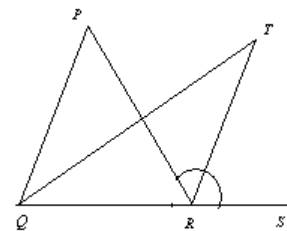
27. Locate the point P(2, 4), Q(4, 2), R(4, -3), S(-3,4) on the graph paper and join them to recognize the figure.

28. In the given figure, OP||RS. Determine $\angle$ PQR.

29. In the given figure, the side QR of $\triangle$ PQR is produced to a point S. If the bisectors of $\angle$ PQR and $\angle$ PRS meet at point T, Then prove that $\angle$ QTR = $\frac{1}{2}\angle$ QPR.
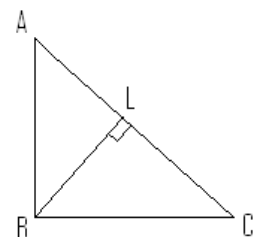
30 Using factor theorem, factories $x^3 - 10x^2 - 53x^2 - 42$.

31. If $x^2 + y^2 + z^2 - xy - yz - zx = 0$, prove that x=y=z.

32. Use factor theorem. Prove that (x-y)(y-z) and (z-x) are factors of x^2(y-z)+y^2(z-x) and z^2(x-y).

33. In $\triangle$ABC, right angled at A. AL $\perp$ BC. Prove that $\angle$ BAL = $\angle$ ACB.

34. In a $\triangle$ABC, D is a point on BC, such that AD is the bisector of $\angle A$ .prove that AB>BD.