CBSE Class 9th

Sample Paper

SECTION (MARKS – 1 each)

1. $(125)^{-\frac{1}{3}}$ can be written as (i) 5 (ii) -5 (iii) 1/5 (iv) none.

2. Check whether the polynomial $g(t) = 4t^3 + 4t^2 - t - 1$ is a multiple of $2t + 1$.

3. $\sqrt{7}$ is a polynomial of degree of _____

4. Prove that a line has one & only one mid-point.

5. The perimeter of a triangular field is 540m & its sides are in the ratio 25:17:12. Find the ar of the Δ.

6. The lengths of the sides of a triangle are 5cm, 12cm, & 13cm . Find the length of the longer perpendicular.

7. If $a^2 + b^2 + c^2 - ab - bc - ca$ equals (i) $(a+b+c)^2$ (ii) $(a-b-c)^2$ (iii) $(a-b+c)^2$ (iv) $\frac{1}{2}\left[(a-b)^2 + (b-c)^2 + (c-a)^2\right]$

8.
    The height of equilateral triangle is 9cm find the area.

SECTION –B………. (MARKS – 2 each)

9. Find the value of 'x'
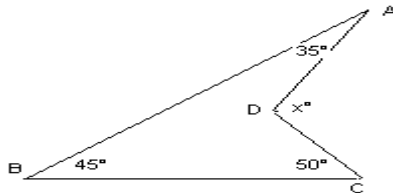
10. If x=$3 + 2\sqrt{2}$, check whether $x + \frac{1}{x}$ rational or irrational.

11. Factorise : $(9x^2 - 1) - (1 + 3x)^2$.

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12. In $(x+y)=8$ & $(x^2+y^2)=48$, find the value of (x^3+y^3).

13. Find the angle if five-times the complement is 24^0 less than twice of its supplement.

14. In a Δ ABC, $\dfrac{\angle A}{3} = \dfrac{\angle B}{4} = \dfrac{\angle C}{2}$ find the angles of Δ.

SECTION – C ···········(MARKS – 3 each)

15. The base BC of an equilateral triangle ABC with side BC = 8 units lie along x-axis such that the mid point of the base is at the origin. Find the coordinates of B & C. Also find coordinates of third vertex A, if A lies along positive direction of y-axis.

16. x+y+z=9, xy+yz+zx=28 what is the value of $\sqrt{x^2+y^2+z^2}$.

17. Express $23.4\overline{53}$ in the form p/q.

18. If $x^2-bx+c=(x+p)(x-q)$, then, factorise $x^2-bxy+cy^2$.

19. In the following figures find 'x':
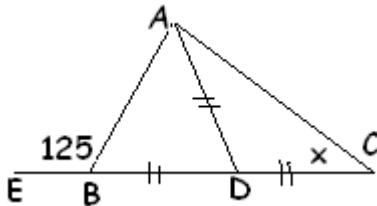
20. A teacher asked the students about their heights. Manoj said his height is same as that of Abhinav. Tarun also answered the same way, that its height is same as that of Abhinav. She then asked the students to relate the height of Manoj & Tarun. Abhinav answered they both have same height. Is Abhinav correct ? If yes, state Euclid's axiom which supports the answer. Which value of Abhinav are depicted here. {Ans : knowledge & truthful}

21. PQRS is a quadrilateral & T & U are respectively points on PS & RS such that PQ = RQ, $\angle PQT = \angle RQU$ & $\angle TQS = \angle UQS$ Prove that QT=QU.
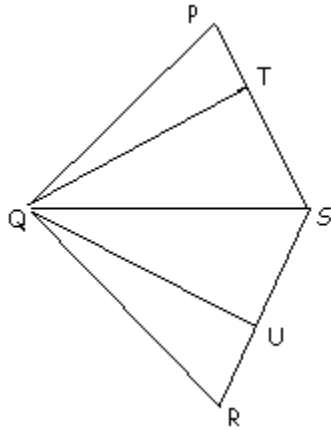
22. RT=TS, $\angle 1 = 2\angle 2$, $\angle 4 = 2\angle 3$. Prove that $\triangle RBT \cong \triangle SAT$.
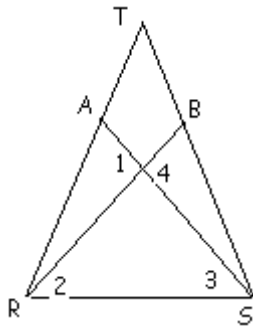
23. If $a = \dfrac{5 - \sqrt{21}}{2}$ prove that $\left(a^3 + \dfrac{1}{a^3}\right) - 5\left(a^2 + \dfrac{1}{a^2}\right) + \left(a + \dfrac{1}{a}\right) = 0$

24. If xyz=1, show that $\dfrac{1}{1 + x + y^{-1}} + \dfrac{1}{1 + y + z^{-1}} + \dfrac{1}{1 + z + x^{-1}} = 1$

25. Find the square root of : (i) $9 + 4\sqrt{3} - 2\sqrt{6} - 4\sqrt{2}$

SECTION – D............. (MARKS – 4 each)

26. Find the values of m & n if remainder 29 is left when x³-mx²-nx-3 is divided by x+2 & x-3 is factor of x³+x²+mx+n.

27. If a³ + b³ + c³ = 3abc and a + b + c = 0 show that $\dfrac{(b+c)^2}{3bc} + \dfrac{(c+a)^2}{3ac} + \dfrac{(a+b)^2}{3ab} = 1$

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28. ABCD is a square, P is the mid-point of AB. CP and DP are joined. Prove that : (i) $\Delta ADP \cong \Delta BCP$ (ii) $\angle PCD = \angle PDC$
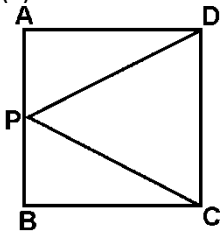
29. Plot the following points & check whether the following points are collinear (6,-2), (1,3), (-2,-4), & (-1,5)

30. In the adjoining figure, ABCD is a quadrilateral, in which AB || CD and P is the mid point of BC. Produce AP and DC to meet at Q. Prove that (i) AB = CQ   (ii) DQ = DC + AB
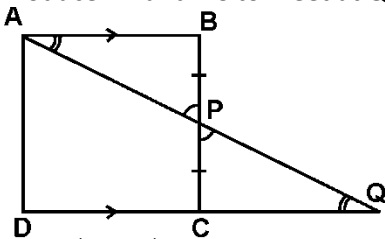
31. poI If $\left(x^2 - 1\right)$ is a factor of $px^4 + qx^3 + rx^2 + sx + t$ prove that $p + r + t = q + s = 0$.

32. The area of an isosceles Δ is 240cm^2. & the length of one of the equal sides is 26cm. find its base.

**********ALL THE BEST**********

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