



Time Allowed: 3 Hours

Maximum Marks: 80

Instructions:

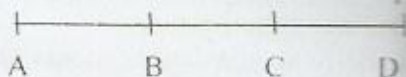
- All questions are compulsory.
- Section A carry 6 questions of 1 mark each
- Section B carry 6 questions of 2 marks each
- Section C carry 10 questions of 3 marks each
- Section D carry 8 questions of 4 marks each

Section A (1 mark each)

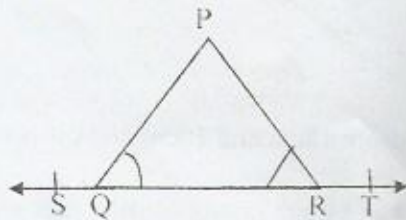
1. Write an irrational number between 2.4 and 2.5.
2. What is coefficient of x^2 in $4x^2 + 2x + 1$.
3. In which quadrant will the point lie if ordinate is 4 and abscissa is -6?
4. Write the complement of 73° .
5. What is the degree of polynomial $4x^3 + 0x^5 + 2x + 7$.
6. What is the abscissa of (3,-4).

Section B (2 marks each)

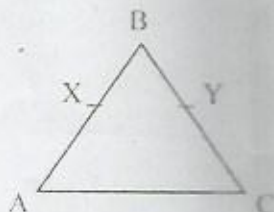
7. Locate $\sqrt{3}$ on number line.
8. In given figure if $AC = BD$, then prove that $AB = CD$.



9. In the given figure if $\angle PQR = \angle PRQ$, then prove that $\angle PQS = \angle PRT$.



10. Find the decimal expansion of $\frac{7}{8}$.
11. Find the value of polynomial $6x^3 - 2x + 7$ at $x=0$
12. In the given figure, X and Y are the mid points of BA and BC respectively and $AX = CY$. Show that $AB = BC$.



1.12
 $\sqrt{97}$
 $\begin{array}{r} 9 \\ \underline{90} \\ 70 \\ \underline{63} \\ 40 \\ \underline{36} \\ 4 \end{array}$
 06

Section C (3 marks each)

13. Rationalize the following-

a) $\frac{1}{\sqrt{3}+5}$

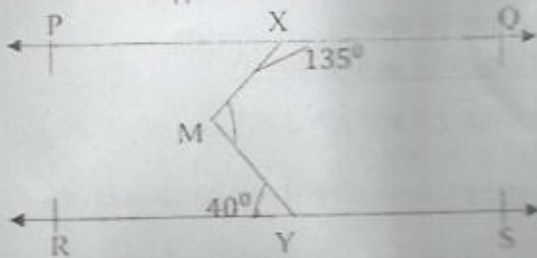
b) $\frac{\sqrt{4}-\sqrt{7}}{\sqrt{4}+\sqrt{7}}$

14. Check whether $7+3x$ is a factor of $3x^3 + 7x$ or not.

15. In which quadrant or on which axis do each of the following points lie.

$(3,-6)$, $(5,8)$, $(0,2)$, $(-1,3)$, $(-5,0)$, $(-7,-2)$

16. In fig given below $PQ \parallel RS$, $\angle MXQ = 135^\circ$ and $\angle MYR = 40^\circ$ find $\angle XMY$.



17. Find the zero of the polynomial for the following

a) $p(x) = ax$

b) $p(x) = 3x-2$

18. Plot the points (x, y) given in the following table on the plane, choosing suitable units of distance on the axes.

x	-5	2	-7	3	0	6
y	0	3	-2	-1	4	-5

19. The sides of triangular plot are in ratio 3:5:7 and its perimeter is 300m. Find its area.

20. In the given figure line segment AB is parallel to another line segment CD. O is the mid point of AD. Show that:

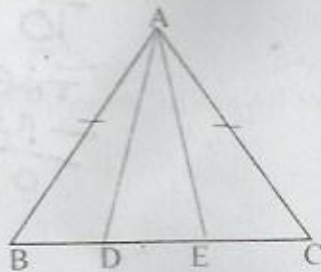


a) $\triangle AOB \cong \triangle DOC$

b) O is also mid point of BC

21. Find the area of triangle with two sides of measure 18cm and 10cm and the perimeter of 42 cm.

22. In an isosceles triangle ABC with $AB=AC$, D and E are points on BC, such that $BE=CD$. Show that $AD=AE$



Section D (4 marks each)

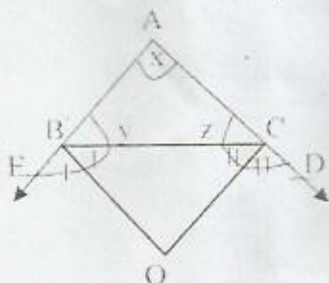
23. Factorize $x^3 - 23x^2 + 142x - 120$

24. Find the value of 'k', if the polynomial $p(x) = 4x^3 - 12x^2 + 14x - k$ when divided by $2x - 1$ leaves remainder $\frac{3}{2}$.

OR

Divide the polynomial $3x^4 - 4x^3 - 3x - 1$ by $x - 1$.

25. In the figure given below the sides AB and AC of $\triangle ABC$ produced to points E and D respectively. If the bisector of BO and CO of $\angle CBE$ and $\angle BCD$ respectively meet at point O, then prove that $\angle BOC = 90^\circ - \frac{1}{2}\angle BAC$.



26. Simplify $(\sqrt{5} + \sqrt{2})^2$

27. Find the following:

a) $32^{\frac{1}{5}}$

b) $\frac{11^{\frac{1}{2}}}{11^{\frac{1}{4}}}$

28. Construct the following angles

a) 120°

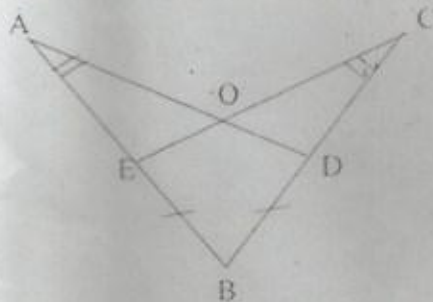
b) $22\frac{1}{2}^\circ$

29. In the figure given below it is given that $\angle A = \angle C$ and $AB = CB$. Prove that

a) $\triangle ABD \cong \triangle CBE$

b) $AE = CD$

c) $\triangle AOE \cong \triangle COD$



30. Construct a triangle XYZ in which $\angle Y = 30^\circ$, $\angle Z = 90^\circ$ and $XY + YZ + ZX = 11\text{cm}$.

OR

Construct a triangle ABC in which $BC = 7\text{cm}$, $\angle B = 75^\circ$ and $AB + AC = 13\text{cm}$.
