

Section A – 1 Mark each

1. If $AB = QR$, $BC = PR$ and $CA = PQ$, then $\Delta ABC \cong$ _____
2. Degree of zero polynomial is _____
3. State Euclid's fifth postulate.
4. Write coordinates of points equidistant from the 2 axes.
5. If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2 : 3, then find the greater of the two angles.
6. Side of an equilateral triangle is doubled. Find ratio of areas of 2 triangles.

Section B – 2 Marks each

7. Find area of ΔABC , A (4, 0), O (0, 0), B (0, 4)
8. Find the value of $\frac{7.83 \times 7.83 - 1.17 \times 1.17}{6.66}$ without actual calculation.
9. Evaluate $\frac{\sqrt{50} + \sqrt{75}}{\sqrt{8} + \sqrt{12}}$.

OR

Represent $2.\overline{345}$ in $\frac{p}{q}$ from where p, q are integers and $q \neq 0$.

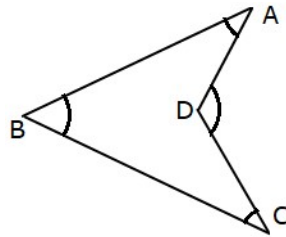
10. Two parallel lines are cut by a transversal, prove pair of alternate interior angles are equal.
11. AD is bisector of angle A of ΔABC intersecting BC at D. Prove $AB > BD$.
12. Two sides containing the right angle of triangle are 6 cm and 8 cm. find area using heron's formula.

Section C – 3 Marks each

13. Show (a) difference (b) quotient of two distinct irrational numbers may be rational or irrational.

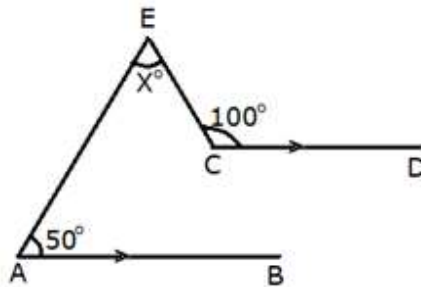
14. IF $3x + y + z = 0$, show that $27x^3 + y^3 + z^3 = 9xyz$.

15. In the given figure prove that $\angle ADC = \angle A + \angle B + \angle C$



16. Plot point A (1.75, 3) and B (3, 4) on the graph using appropriate scale and find distance of point A from the origin.

17. In the given figure, $AB \parallel CD$. Find the value of x .



18. C is midpoint of line segment AB. Show $AC = \frac{1}{2} AB$ using Euclid's axioms / postulate.

19. If $x^4 + \frac{1}{x^4} = 47$, then find the value of $x^3 + \frac{1}{x^3}$.

OR

Represent $\sqrt{10.5}$ on number line. Prove your construction.

20. $2^x = 3^y = 6^z$ show $z = \frac{xy}{x+y}$

OR

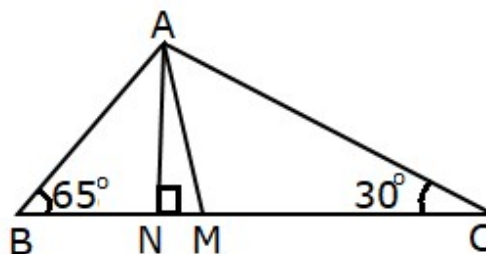
Represent $\sqrt{11}$ on number line. Prove your construction.

21. Each side of a triangle becomes 5 times. Find percentage increase in area.
22. O is a point in the interior of equilateral ΔABC , perpendicular are drawn from this point to the three sides of triangle measuring 12 cm, 13 cm and 15 cm. find side and area of ΔABC

Section D – 4 Marks each

23. In a ΔABC , $\angle B > \angle C$. if AM is the bisector of $\angle BAC$ and $AN \perp BC$, prove that

$$\angle MAN = \frac{1}{2}(\angle B - \angle C). \text{ Also find } \angle MAN \text{ from the figure.}$$



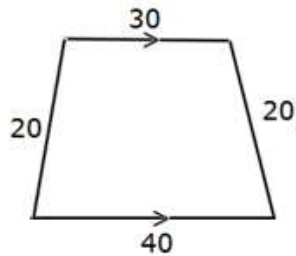
24. Bisector of $\angle A$ of ΔABC bisects side BC. Prove ΔABC is isosceles.
25. Factorise $15x^2 - 34x + 15$ by factor theorem.
26. Renu participates in Diwali Mela with her friends for the charity to centre of handicapped children. They donate ₹3600 to the centre from the amount earned in mela. Each girl donates ₹150 and each boy donates ₹200. Taking number of boys as x and number of girls as y and represent it graphically.

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27. If both $x - 2$ and $x - \frac{1}{2}$ are factors of $px^2 + 5x + r$, find values of p and r .
28. ABC is a right triangle such that $AB = AC$ and bisector of angle C intersects the side AB at D. Prove that $AC + AD = BC$

29. Find area of given trapezium using Heron's Formula.



30. Draw the graph of $3x + 2y = 6$ and find coordinates of points where it intersects the two axes also find area of triangle formed by this line with the two axes.