

Villupuram model revision exam

CLASS: X STD

SUBJECT : MATHEMATICS

TIME : 2 ½ Hrs

MARK : 100

Section - A

I. Answer the following :

14 x 1 = 14

- In $\triangle ABC$ is an isosceles triangle with $\angle C = 90^\circ$ and $AC = 5\text{cm}$, then AB is
 a) 2.5cm b) 5cm c) 10cm d) $5\sqrt{2}\text{cm}$
- The perimeters of two similar triangles $\triangle ABC$ and $\triangle PQR$ are 36cm and 24cm respectively. If $PQ=10\text{cm}$, then the length of AB is
 a) $6\frac{2}{3}\text{cm}$ b) $\frac{10\sqrt{6}}{3}\text{cm}$ c) $66\frac{2}{3}\text{cm}$ d) 15 cm
- In $\triangle ABC$, AD is a bisector of $\angle BAC$. If $AB=8\text{cm}$, $BD=6\text{cm}$, $DC=3\text{cm}$. The length of side AC is
 a) 6cm b) 4cm c) 3cm d) 8cm
- A tangent is perpendicular to the radius at the
 a) Centre b) Point of contact c) Infinity d) Chord
- How many tangents can be drawn to the circle from an exterior point ?
 a) One b) Two c) Infinity d) Zero
- A cevian that divides the opposite side in to two congruent (equal) lengths is called _____
 a) a median b) an altitude c) an angle bisector d) orthocenter
- If two circles touch externally, the distance between their centre is equal to
 a) sum of their radii b) product of their radii c) difference of their radii d) zero
- The area of triangle formed by the points $(-3,5)$ $(5,6)$ $(5,-2)$ are
 a) 20 sq. units b) 25 sq. units c) 32 sq units d) 35 sq. units
- The straight line given by the equation $x = 11$ is
 a) parallel to $x - axis$ b) parallel to $y - axis$ c) passing through the origin d) passing through the point $(0,11)$
- If $(5,7)$, $(3,P)$ and $(6,6)$ are collinear, then the value if P is
 a) 3 b) 6 c) 9 d) 12
- The slope of a line which is perpendicular to a line joining the points $(0,0)$ and $(-8,8)$ is
 a) -1 b) 1 c) $\frac{1}{3}$ d) -8
- The slope of a straight line $6x + 8y + 7 = 0$
 a) $\frac{3}{4}$ b) $-\frac{3}{4}$ c) $\frac{4}{3}$ d) $-\frac{4}{3}$

13. The slope of a line whose inclination is 30° ?

- a) $\sqrt{3}$ b) $\frac{1}{\sqrt{3}}$ c) 0 d) ∞

14. The point of intersection of $3x - y = 4$ and $x + y = 8$ is

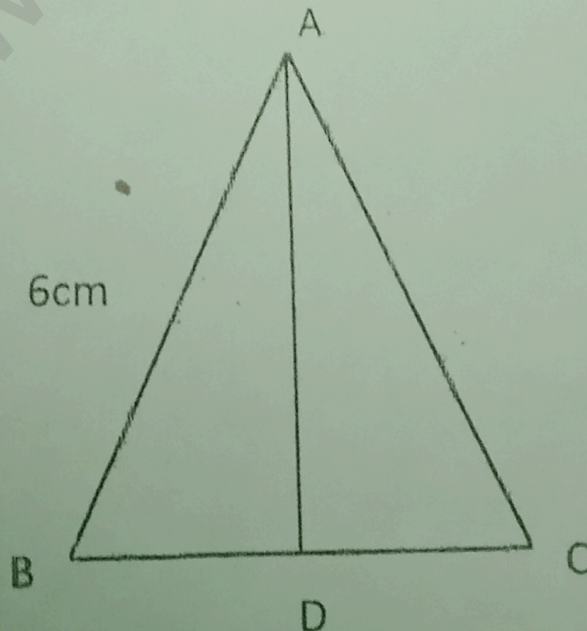
- a) (5, 3) b) (2, 4) c) (3, 5) d) (4, 4)

Section - B

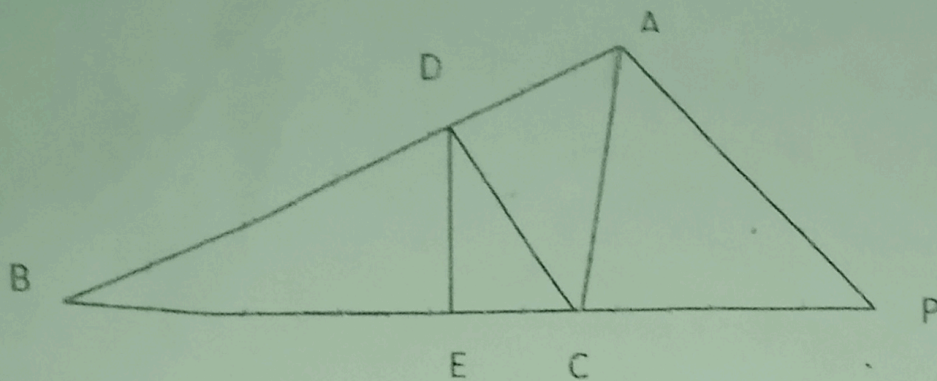
II. Answer ANY 10 of the following : (Q. No. 28 is compulsory)

10 x 2 = 20

15. The line P passes through the points (3, -2) (12, 4) and the line q passes through (6, -2) and (12, 2). Is p parallel to q ?
16. Find the slope of a line joining the points (-6, 1) (-3, 2).
17. Find the equation of a line whose inclination is 30° and making an intercept -3 on the y - axis.
18. Find the equation of a line whose intercepts on x and y axes are 4, -6 .
19. Find the equation of a straight line passing through (5, -3) (7, -4).
20. Find the area of triangle formed by the points (1, -1) (-4, 6) and (-3, -5).
21. If the area of the triangle formed by the vertices A(-1, 2), B(K, -2), C(7, 4) (taken in order) is 22 sq. units, find the value of K.
22. The length of a tangent to a circle from a point p, which is 25cm away from the centre is 24cm. What is radius of circle ?
23. A man goes 18m due east and then 24m due north. Find the distance of his current position from the starting point ?
24. If radii of two concentric circle are 4cm and 5cm, then find the length of the chord of one circle which is a tangent to the other circle.
25. In $\triangle ABC$, D and E are points on the sides AB and AC respectively such that $DE \parallel BC$ if $\frac{AD}{DB} = \frac{3}{4}$ and $AC = 15\text{cm}$. Find AE.
26. AD is the bisector of $\angle A$. If $BD = 4\text{cm}$ $DC = 3\text{cm}$, $AB = 6\text{cm}$ find AC.



27. If $DE \parallel AC$ and $DC \parallel AP$. Prove that $\frac{BE}{EC} = \frac{BC}{CP}$.



28. State the converse of angle bisector theorem.

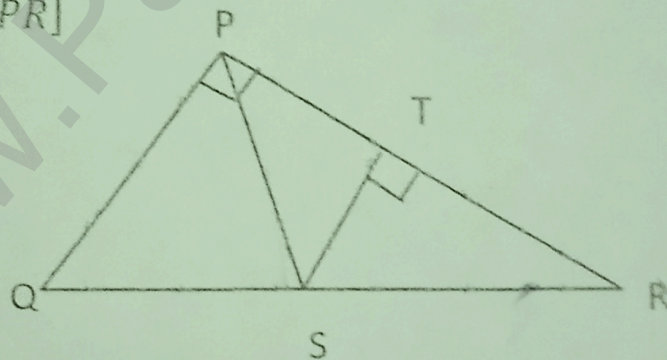
Section - C

III. Answer the following (Any 10) [Compulsory Q.No. 42]

10 x 5 = 50

29. State and prove the Thales Theorem.
30. Two poles of height 'a' meters and b meters are 'p' meters apart. Prove that the height of the point of intersection of the lines joining the top of each pole to the foot of the opposite pole is given by $\frac{ab}{a+b}$ meters.
31. In fig $\angle QPR = 90^\circ$, PS is bisector, If $ST \perp PR$. Prove that

$$ST[PQ + PR] = [PQ \times PR]$$



32. In trapezium ABCD, $AB \parallel DC$. E & F are points on non parallel sides AD and BC respectively. Such that $EF \parallel AB$. Show that $\frac{AE}{ED} = \frac{BF}{FC}$.

33. State and prove Pythagoras theorem.

34. P and Q are the midpoints of the sides CA and CB respectively of a ΔABC , right angled at C, $4[AQ^2 + BP^2] = 5AB^2$. Prove that.

35. Show that in a triangle, the medians are concurrent.

36. Find the area of the quadrilateral formed by the points (8,6) (5,11) (-5,12) (-4,3).
37. Let A[3,-4] B[9,-4] C[5,-7] D[7,-7]. Show that ABCD is a Trapezium.
38. Prove analytically that the line segment joining the midpoints of two sides of a triangle is parallel to the third sides and is equal to half of its length.
39. A line makes positive intercepts on co ordinate axes whose sum is 7 and it passes through (-3,8). Find its equation.
40. Find the equation of the median and altitude of ΔABC through A where the vertices are A[6,2] B[-5,-1] C[1,9].
41. If the points P[-1,-4] Q[b , c] and R[5,-1] are collinear and if $2b+c=4$, then find the values of b and c.
42. Find the equation of a straight line which has slope $\frac{-5}{4}$ and passing through the point [-1,2].

Section - D

IV. Answer the following:

2 x 8 = 16

43. a) Construct a triangle similar to a given ΔPQR with its side equal to $\frac{7}{4}$ of the corresponding sides of the scale PQR, [scale factor $\frac{7}{4} > 1$].

(Or)

- b) Draw a ΔABC of base $BC=8\text{cm}$, $\angle A=60^\circ$ and the bisector of $\angle A$ meets BC at D such that $BD=6\text{cm}$.

44. a) Draw a circle of radius 4cm, at a point L on it draw a tangent to the circle using the alternate segment.

(Or)

- b) Draw a circle of diameter 6cm from a point P which is 8cm away from its centre. Draw the two tangents PA and PB to the circle and measure their lengths.