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CBSE 10th Triangles Unsolved Paper

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CBSE 10th Triangles

Unsolved Paper

Q.1. In $\triangle ABC$, D and E are points on the sides AB and AC respectively such that $DE \parallel BC$

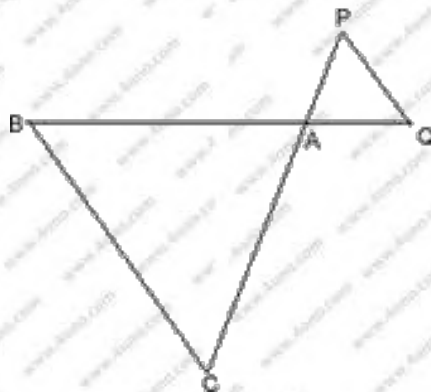
- i. If $AD = 6$ cm, $DB = 9$ cm and $AE = 8$ cm, find AC
- ii. If $\frac{AD}{DB} = \frac{3}{4}$ and $AC = 15$ cm, find AE
- iii. If $\frac{AD}{DB} = \frac{2}{3}$ and $AC = 18$ cm, find AE
- iv. If $AD = 4$, $AE = 8$, $DB = x - 4$, and $EC = 3x - 19$, find x
- v. If $AD = 8$ cm, $AB = 12$ cm and $AE = 12$ cm, find CE
- vi. If $AD = 4$ cm, $DB = 4.5$ cm and $AE = 8$ cm, find AC.
- vii. If $AD = 2$ cm, $AB = 6$ cm and $AC = 9$ cm, find AE
- viii. If $\frac{AD}{BD} = \frac{4}{5}$ and $EC = 2.5$ cm, find AE
- ix. If $AD = x$, $DB = x - 2$, $AE = x + 2$ and $EC = x - 1$, find the value of x.
- x. If $AD = 8x - 7$, $DB = 5x - 3$, $AE = 4x - 3$ and $EC = (3x - 1)$, find the value of x.
- xi. If $AD = 4x - 3$, $AE = 8x - 7$, $BD = 3x - 1$ and $CE = 5x - 3$, find the value of x.
- xii. If $AD = 2.5$ cm, $BD = 3.0$ cm and $AE = 3.75$ cm, find the length of AC.

Q.2. In a $\triangle ABC$, P and Q are points on sides AB and AC respectively, such that $PQ \parallel BC$. If $AP = 2.4$ cm, $AQ = 2$ cm, $QC = 3$ cm and $BC = 6$ cm, find AB and PQ.

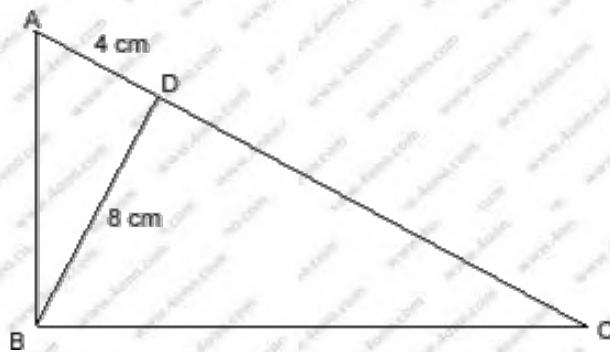
Q.3. In a $\triangle ABC$, D and E are points on AB and AC respectively such that $DE \parallel BC$. If $AD = 2.4$ cm, $AE = 3.2$ cm, $DE = 2$ cm and $BC = 5$ cm, find BD and CE.

Q.4. $\triangle ABC$ is a triangle such that $\frac{AB}{AC} = \frac{BD}{DC}$, $\angle B = 70^\circ$, $\angle C = 50^\circ$. Find $\angle BAD$.

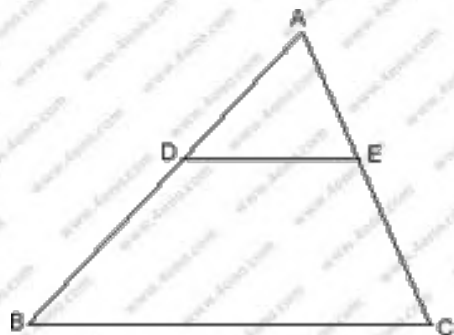
Q.5. $\triangle ACB \sim \triangle APQ$. If $BC = 8$ cm, $PQ = 4$ cm, $BA = 6.5$ cm and $AP = 2.8$ cm, find CA and AQ .



Q.6. $\angle ABC = 90^\circ$ and $BD \perp AC$. If $BD = 8$ cm and $AD = 4$ cm, find CD .



Q. 7. $DE \parallel BC$ such that $AE = (1/4) AC$. If $AB = 6$ cm, find AD .



Q.8. D and E are the points on the sides AB and AC respectively of a $\triangle ABC$ such that: $AD = 8$ cm, $DB = 12$ cm, $AE = 6$ cm and $CE = 9$ cm. Prove that $BC = 5/2 DE$.

Q. 9. The corresponding altitudes of two similar triangles are 6 cm and 9 cm respectively. Find the ratio of their areas

Q.10. ABC is a triangle in which $\angle A = 90^\circ$, $AN \perp BC$, $BC = 12$ cm and $AC = 5$ cm. Find the ratio of the areas of $\triangle ANC$ and $\triangle ABC$.

Q.11. In $\triangle ABC$, D and E are the mid-points of AB and AC respectively. Find the ratio of the areas of $\triangle ADE$ and $\triangle ABC$

Q.12. In ABC, P divides the side AB such that $AP : PB = 1 : 2$. Q is a point in AC such that $PQ \parallel BC$. Find the ratio of the areas of $\triangle APQ$ and trapezium BPQC.

Q.13. The areas of two similar triangles are 100 cm^2 and 49 cm^2 respectively. If the altitude the bigger triangle is 5 cm, find the corresponding altitude of the other.

Q.14. The areas of two similar triangles are 121 cm^2 and 64 cm^2 respectively. If the median of the first triangle is 12.1 cm, find the corresponding median of the other.

Q.15. If $\triangle ABC \sim \triangle DEF$ such that $AB = 5$ cm, $\text{area}(\triangle ABC) = 20 \text{ cm}^2$ and $\text{area}(\triangle DEF) = 45 \text{ cm}^2$, determine DE.

Q.16. In $\triangle ABC$, PQ is a line segment intersecting AB at P and AC at Q such that $PQ \parallel BC$ and PQ divides $\triangle ABC$ into two parts equal in area. Find $\frac{BP}{AB}$

Q.17. The areas of two similar triangles ABC and PQR are in the ratio 9:16. If $BC = 4.5$ cm, find the length of QR.

Q.18. ABC is a triangle and PQ is a straight line meeting AB in P and AC in Q. If $AP = 1$ cm, $PB = 3$ cm, $AQ = 1.5$ cm, $QC = 4.5$ m, prove that area of $\triangle APQ$ is one- sixteenth of the area of ABC.

Q.19. If D is a point on the side AB of $\triangle ABC$ such that $AD : DB = 3.2$ and E is a Point on BC such that $DE \parallel AC$. Find the ratio of areas of $\triangle ABC$ and $\triangle BDE$.

Q.20. If the sides of a triangle are 3 cm, 4 cm, and 6 cm long, determine whether the triangle is a right-angled triangle.

Q.21. A ladder 17 m long reaches a window of a building 15 m above the ground. Find the distance of the foot of the ladder from the building.

Q.22. In an isosceles triangle ABC, $AB = AC = 25$ cm, $BC = 14$ cm. Calculate the altitude from A on BC.

Q.23. A triangle has sides 5 cm, 12 cm and 13 cm. Find the length to one decimal place, of the perpendicular from the opposite vertex to the side whose length is 13 cm.

Q.24. In an isosceles triangle ABC, if $AB = AC = 13$ cm and the altitude from A on BC is 5 cm, find BC.

Q.25. In a $\triangle ABC$, $AB = BC = CA = 2a$ and $AD \perp BC$. Prove that

(i) $AD = a\sqrt{3}$

(ii) $\text{Area}(\triangle ABC) = \sqrt{3}a^2$

Q.26. In an acute-angled triangle, express a median in terms of its sides

Q.27. Calculate the height of an equilateral triangle each of whose sides measures 12 cm.

Q.28. In right-angled triangle ABC in which $\angle C = 90^\circ$, if D is the mid-point of BC, prove that

$$AB^2 = 4AD^2 - 3AC^2$$

Q.29. A guy wire attached to a vertical pole of height 18 m is 24 m long and has a stake attached to the other end. How far from the base of the pole should the stake be driven so that the wire will be taut?

Q.30. Determine whether the triangle having sides $(a - 1)$ cm, $2\sqrt{a}$ cm and $(a + 1)$ cm is a rightangled triangle.

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