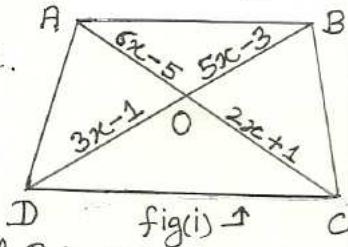


CLASS: X SUBJECT: MATHEMATICS ASSIGNMENT 5: JULY 2010

CHAPTER: TRIANGLES

Q1. In a given $\triangle ABC$, $DE \parallel BC$ and $\frac{AD}{DB} = \frac{3}{5}$. If $AC = 5.6$ cm, find AE . (Ans: 2.1 cm)

Q2. In fig(i): $AB \parallel CD$, find the value of x . (Ans: 2)

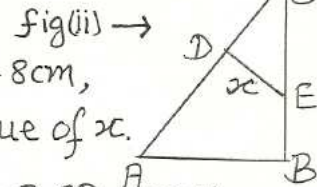


Q3. $\triangle BAC$ and $\triangle BDC$, right-angled at A and D respectively, are drawn on the same base BC and on the same side of BC . If AC and BD intersect at P , prove that $PA \times PC = PB \times PD$.

Q4. In a $\triangle ABC$, $BD \perp AC$ and $BD^2 = AD \times CD$. Prove that $\angle ABC$ is a right angle.

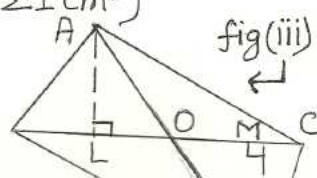
Q5. In a $\triangle ABC$, right-angled at B , $BD \perp AC$. Prove that $BD^2 = AD \times DC$.

Q6. In fig(ii): $\angle A = \angle CED$. If $AD = 7$ cm, $CD = 8$ cm, $CE = 10$ cm, $BE = 2$ cm, $AB = 9$ cm, find the value of x .

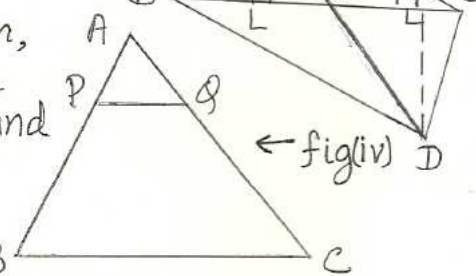


Q7. In a trapezium $ABCD$, $AB \parallel CD$ and $AB = 2 \cdot CD$. If the area of $\triangle AOB = 84$ cm², find the area of $\triangle COD$, given that the diagonals AC and BD intersect at O . (Ans: 21 cm²)

Q8. In fig(iii), prove that $\frac{\text{ar}(\triangle ABC)}{\text{ar}(\triangle DBC)} = \frac{AO}{DO}$. (Hint: Draw $AL \perp BC$, $DM \perp BC$)



Q9. In fig(iv): $AP = 1$ cm, $PB = 3$ cm, $AQ = 1.5$ cm, $QC = 4.5$ cm. Find the ratio of areas of triangles APQ and ABC . (Ans: 1:16)



Q10. A right triangle has hypotenuse of length p cm and one side of length q cm. If $p - q = 1$, find the length of the third side of the triangle. (Ans: $\sqrt{2q+1}$ cm)

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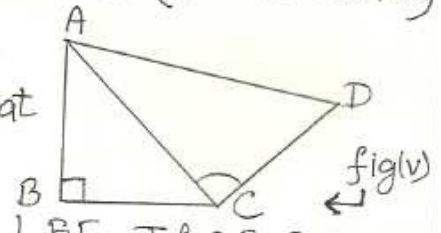
Q11. In a right triangle ABC, $\angle C = 90^\circ$ and $CD \perp AB$. Let $BC = a$, $CA = b$, $AB = c$ and $CD = p$. Prove that (i) $cp = ab$, (ii) $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$.

Q12. In a $\triangle ABC$, $AB = AC$. If $BD \perp AC$, prove that $BD^2 - CD^2 = 2CD \times AD$.

Q13. A $\triangle ABC$ is right-angled at A. A circle is inscribed in it. If $AB = 8\text{ cm}$, $AC = 6\text{ cm}$, find the radius of the circle. (Ans: 2 cm)

Q14. In a $\triangle ABC$, $AB = AC = 25\text{ cm}$ and $BC = 14\text{ cm}$. Find the length of altitude AD from A on BC. (Ans: AD = 24 cm)

Q15. In fig(v): $\angle ABC = 90^\circ$ and $AB^2 + BC^2 + CD^2 = AD^2$. Prove that $\angle ACD = 90^\circ$.



Q16. $\triangle ABC \sim \triangle DEF$. $AL \perp BC$, $DM \perp EF$. If $AB : DE = 2 : 1$, find $AL : DM$. (Ans: 2 : 1)