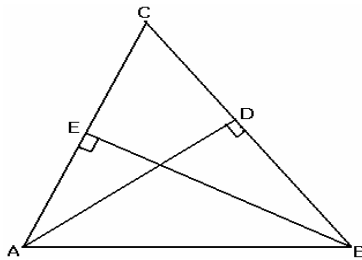


## Chapter Test

### Similar Triangles

1. Prove ratio of areas of two similar triangles is equal to the ratio of squares of corresponding sides. Using it prove areas of two similar triangles are in ratio of squares of corresponding medians. 6
2. State and prove converse of Pythagoras theorem. Using it prove  $\Delta ABC$  is a right triangle given  $AD$  is altitude to side  $BC$  and  $DA^2 = BD \times DC$ . 6
3. In  $\Delta ABC$ ,  $XY \parallel AC$  intersecting  $AB$  at  $X$  and  $AC$  at  $Y$ .  $XY$  divides triangular region  $ABC$  into two parts equal in area. Determine  $\frac{AX}{AB}$ . 3
4.  $ABC$  is an equilateral triangle.  $3BD = BC$  where  $D$  is a point on  $BC$ . Prove  $9AD^2 = 7BC^2$ . 4
5. In fig.  $AD \perp BC$  and  $BE \perp AC$  show that  $CA \times CE = CB \times CD$  and  $CD \times AB = CA \times DE$ . 4
6. In  $\Delta ABC$   $\angle ABC = 135^\circ$ . Prove that  $AC^2 = AB^2 + BC^2 + 4\text{ar}(\Delta ABC)$ . 4
7. In  $\Delta ABC$   $\angle B = 2\angle C$  and bisector of  $\angle B$  intersects  $AC$  at  $D$ . Prove that  $BD \times BA = BC \times DA$  3



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