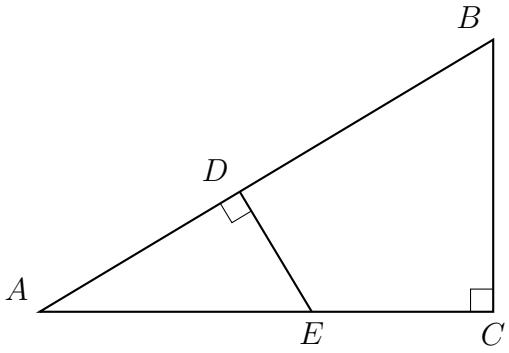
7.8 Homework: Right triangle ratios, constructions

1. In $\triangle ABC$ shown below, $\angle ACB$ is a right angle, E is a point on $\overline{AC}$, and $\overline{ED}$ is drawn perpendicular to hypontenuse $\overline{AB}$. Given $\triangle ABC \sim \triangle AED$.



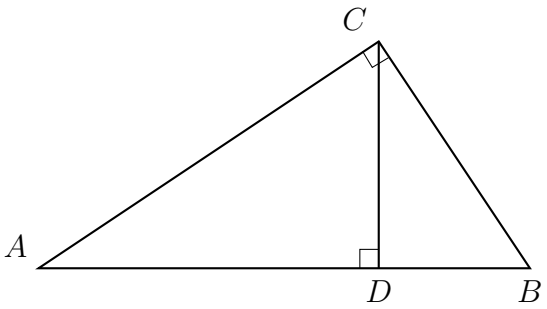
   (a) Justify $\angle BAC \cong \angle EAD$.

   (b) $\angle B \rightarrow$ _____

   (c) $\overline{AC} \rightarrow$ _____

   (d) $DE = k\times$ _____

2. In $\triangle ABC$ shown below, $\angle ACB$ is a right angle, and $\overline{CD} \perp \overline{AB}$.



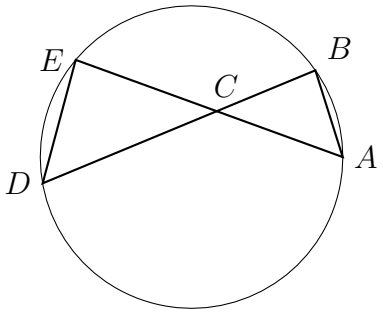
   (a) Name three similar triangles (ordering the letters in proper correspondence).

   (b) T F $\dfrac{BD}{BC} = \dfrac{CD}{AC}$

   (c) T F $\dfrac{AB}{AC} = \dfrac{BC}{AD}$

   (d) T F $AD \times BD = CD \times CD$

3. In the diagram below, the chords $\overline{AE}$ and $\overline{BD}$ intersect at C.

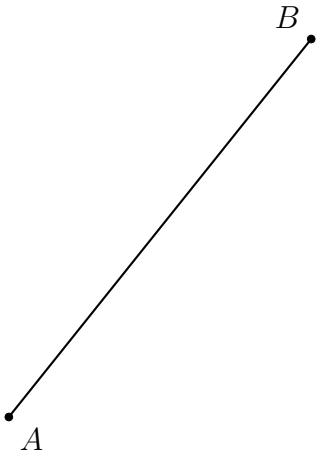


   (a) What angle corresponds with $\angle E$?

   (b) T F $\dfrac{CE}{BC} = \dfrac{CD}{AC}$

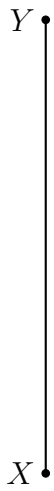
   (c) T F $AC \times CE = BC \times CD$

4. Complete the construction of a perpendicular bisector of $\overline{AB}$. Label the midpoint M. Show all construction marks, but make no extra lines.



5. Accurately draw a square that is 5 centimeters on each side.

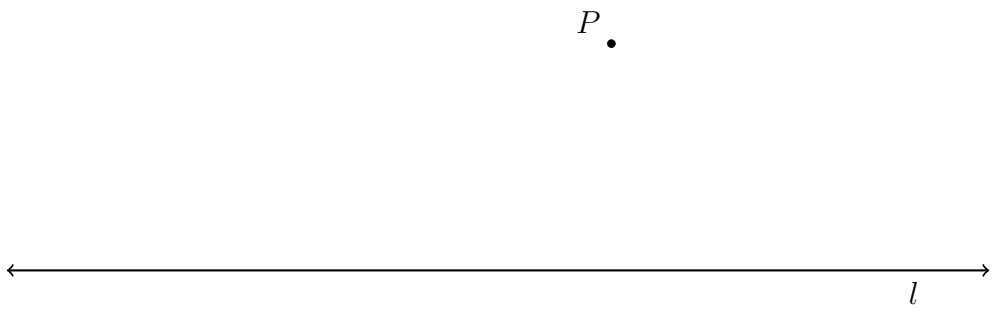
6. Complete the construction of an equilateral triangle with one side as $\overline{XY}$. Show all construction marks, but make no extra lines.



(a) Identify two circles in the construction. For each, name the center of the circle and the radius.

(b) Assuming that the third vertex of the triangle is point Z, explain why the distance from X to Z is the same as the distance from X to Y.

7. Complete the construction of a line perpendicular to line l through the point P. Show all construction marks, but make no extra lines.



8. The perimeter of a square is 52 cm. Find the area of the square.