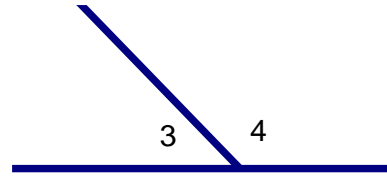
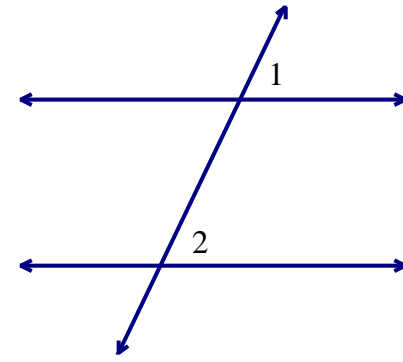


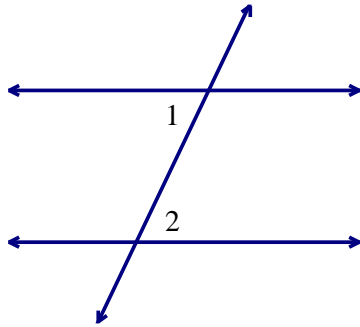
Vertical angles  $\rightarrow$  congruent



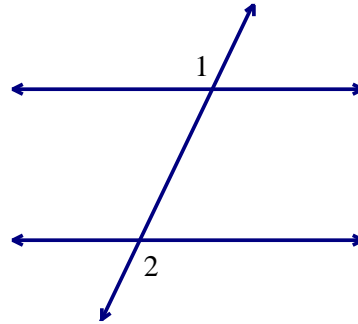
Linear Pair  $\rightarrow$  supplementary



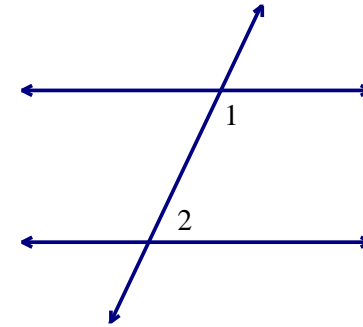
Corresponding  $\rightarrow$  congruent



Alt. Interior  $\rightarrow$  congruent



Alt. Exterior  $\rightarrow$  congruent



Same-side Interior  $\rightarrow$  supplementary

# Warm Up

Given that  $a \parallel b$ , name the angle relationship and

find the missing angle.

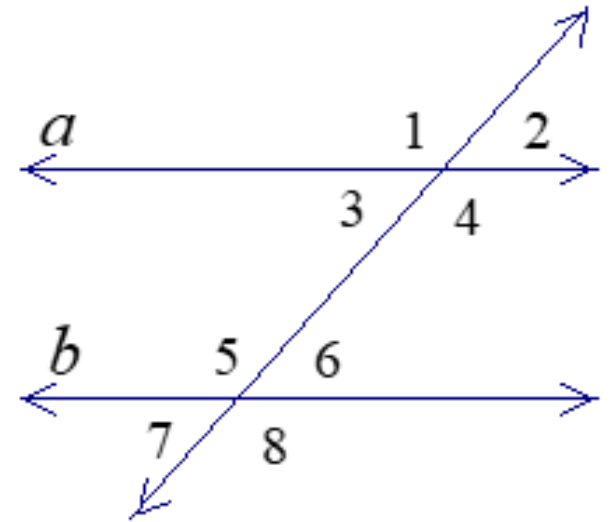
$$\begin{array}{r} 180 \\ -79 \\ \hline 101 \end{array}$$

a) If  $m\angle 3 = 79^\circ$ , find  $m\angle 5 = 101^\circ$   
*same-side int.,*

b) If  $m\angle 4 = 122^\circ$ , find  $m\angle 5 = 122^\circ$   
*alt. int.,*

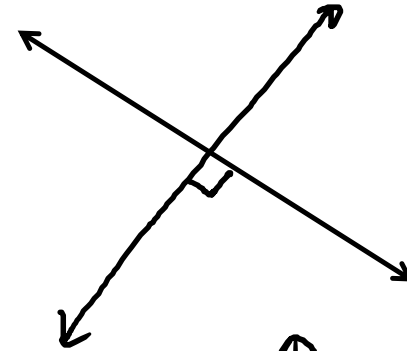
c) If  $m\angle 2 = 63^\circ$ , find  $m\angle 6 = 63^\circ$   
*corresp*

d) If  $m\angle 5 = 145^\circ$ , find  $m\angle 8$ . *vert.,  $145^\circ$*

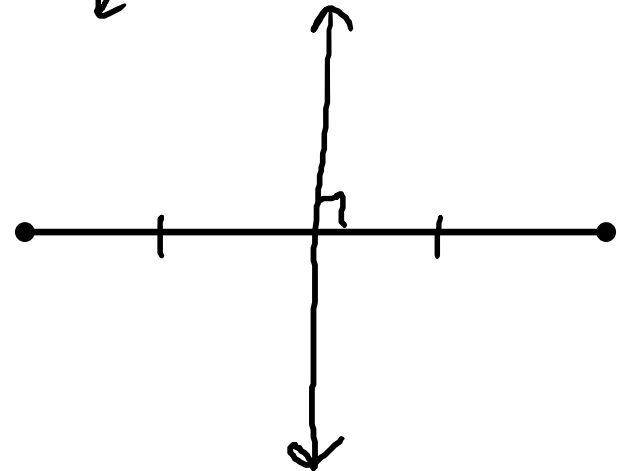


# Perpendicular Bisectors

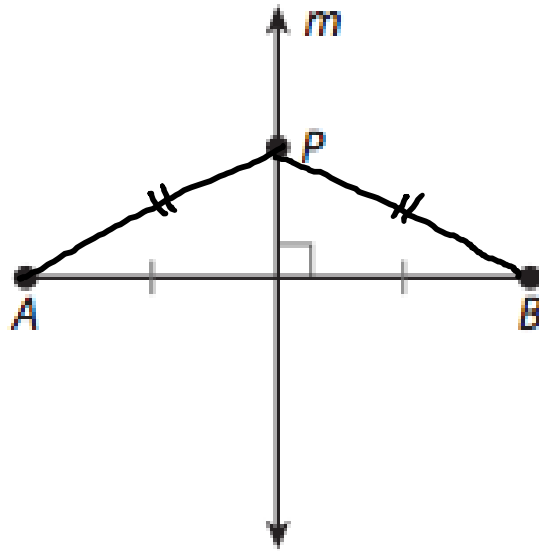
Perpendicular Lines:



Perpendicular Bisector:



The symbol  $\perp$  means that two figures are perpendicular. :

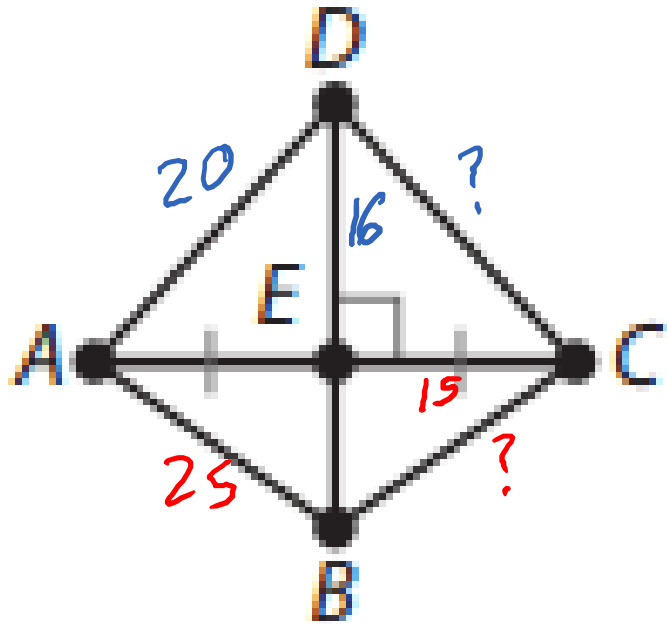


$$m \perp \overline{AB}$$

### Perpendicular Bisector Theorem

If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.

Use the diagram shown.  $\overline{BD}$  is the perpendicular bisector of  $\overline{AC}$ .

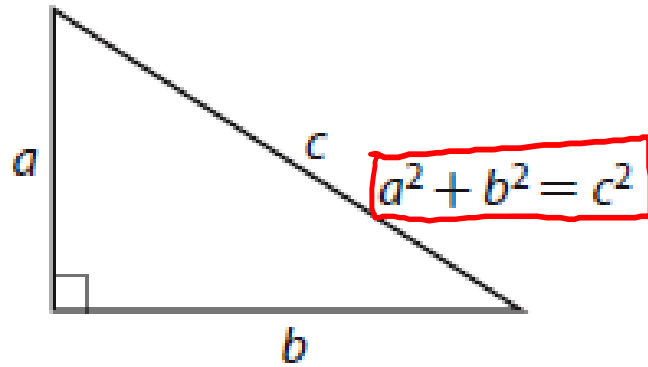


4. Suppose  $ED = 16$  cm and  $DA = 20$  cm. Find  $DC$ .

20

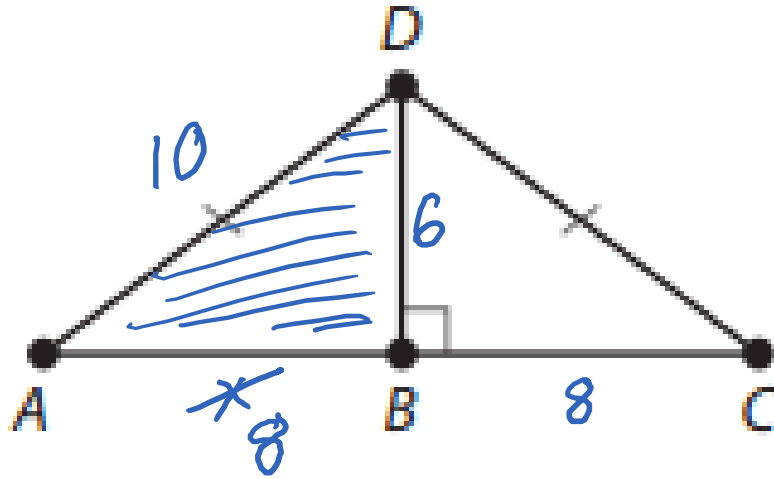
5. Suppose  $EC = 15$  cm and  $BA = 25$  cm. Find  $BC$ .

25



Recall that the Pythagorean Theorem states that for a right triangle with legs of length  $a$  and  $b$  and a hypotenuse of length  $c$ ,  $a^2 + b^2 = c^2$ .

$\overline{AD}$  is 10 inches long.  $\overline{BD}$  is 6 inches long. Find the length of  $\overline{AC}$ .



$$AC = 16$$

$$a^2 + b^2 = c^2$$

$$x^2 + 6^2 = 10^2$$

$$x^2 + 36 = 100$$
$$-36 \quad -36$$

$$\sqrt{x^2} = \sqrt{64}$$

$$x = 8$$