

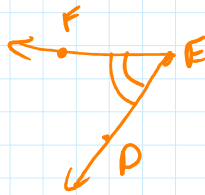
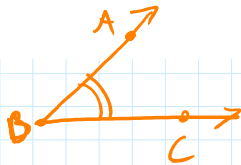
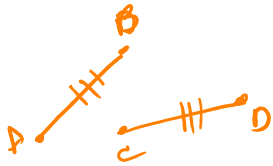
# What You Will Learn

- ▶ Identify congruent angles.
- ▶ Use the Angle Addition Postulate to find angle measures.
- ▶ Bisect angles.

$$\begin{aligned} \angle HGF &\cong \angle CDA \\ \angle CDA &\cong \angle EFG \end{aligned}$$

a. Identify the congruent angles labeled in the quilt design.

b.  $m\angle ADC = 140^\circ$ . What is  $m\angle EFG$ ?  $= 140^\circ$

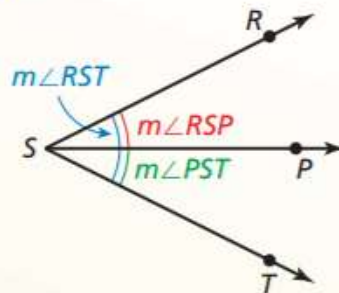


## Postulate 1.4 Angle Addition Postulate

**Words** If  $P$  is in the interior of  $\angle RST$ , then the measure of  $\angle RST$  is equal to the sum of the measures of  $\angle RSP$  and  $\angle PST$ .

**Symbols** If  $P$  is in the interior of  $\angle RST$ , then

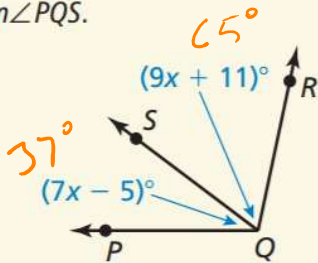
$$m\angle RST = m\angle RSP + m\angle PST.$$





$$AC + CD = AD$$

Given that  $m\angle PQR = 102^\circ$ , find  $m\angle SQR$  and  $m\angle PQS$ .



$$9x + 11; x = 6$$

$$9 \cdot 6 + 11$$

$$54 + 11$$

$$65$$

$$102^\circ = (7x - 5) + (9x + 11)$$

$$102 = 16x + 6$$

$$\begin{array}{r} -6 \\ -6 \end{array}$$

$$\frac{96}{16} = \frac{16x}{16}$$

$$6 = x$$

$$\begin{array}{r} 102 \\ -65 \\ \hline 37 \end{array}$$

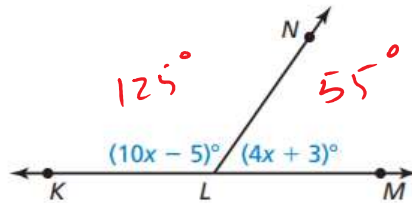
$$7x - 5; x = 6$$

$$7 \cdot 6 - 5$$

$$42 - 5$$

$$37$$

8. Given that  $\angle KLM$  is a straight angle, find  $m\angle KLN$  and  $m\angle NLM$ .



$$4x + 3; x = 13$$

$$4 \cdot 13 + 3$$

$$52 + 3$$

$$55$$

$$180 = (10x - 5) + (4x + 3)$$

$$180 = 14x - 2$$

$$182 = 14x$$

$$13 = x$$

$$10x - 5; x = 13$$

$$10 \cdot 13 - 5$$

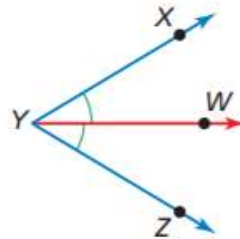
$$130 - 5$$

$$\underline{125}$$

$$\begin{array}{r} 180 \\ -55 \\ \hline 125 \end{array}$$

## Bisecting Angles

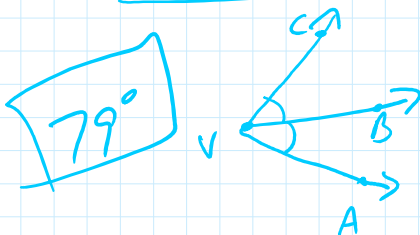
An **angle bisector** is a ray that divides an angle into two angles that are congruent. In the figure,  $\overrightarrow{YW}$  bisects  $\angle XYZ$ , so  $\angle XYW \cong \angle ZYW$ .



You can use a compass and straightedge to bisect an angle.

$\overrightarrow{VB}$  bisects  $\angle AVC$  and  $m\angle AVC = 158^\circ$ .

Find  $m\angle BVC = 79^\circ$



$$158 \cdot \frac{1}{2}$$

Practice *sec 1.5* pg. 43:  
17-27EO, 33-39EO

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