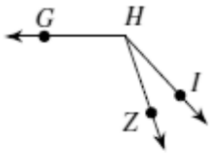


- 19)  $m\angle ZHG = 11x - 1$ ,  $m\angle IHZ = 24^\circ$ ,  
and  $m\angle IHG = 12x + 13$ . Find  $m\angle IHG$ .



$$m\angle GHI = m\angle GHZ + m\angle ZHI$$

$$12x + 13 = 11x - 1 + 24$$

$$12x + 13 = 11x + 23$$

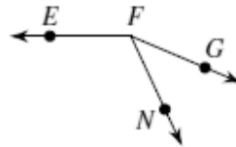
$$x + 13 = 23$$

$$x = 10$$

$$m\angle IHG = 12(10) + 13$$

$$= 133$$

- 20)  $m\angle GFN = 4x + 10$ ,  $m\angle NFE = 14x + 3$ ,  
and  $m\angle GFE = 157^\circ$ . Find  $m\angle NFE$ .



$$m\angle EFG = m\angle EFN + m\angle NFG$$

$$157 \quad 14x + 3 \quad + \quad 4x + 10$$

$$157 = 18x + 13$$

$$144 = 18x$$

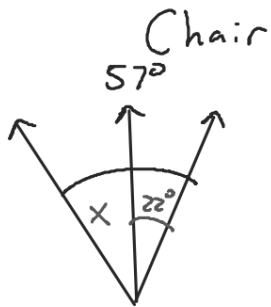
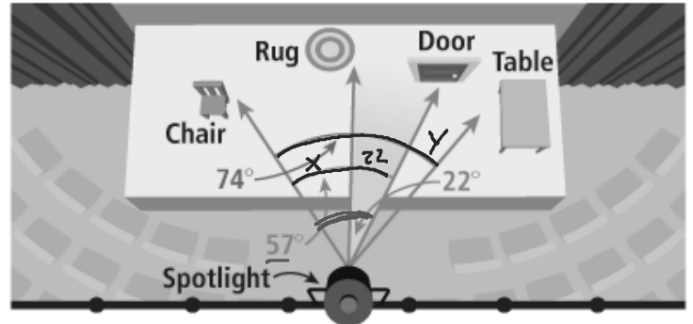
$$x = 8$$

$$m\angle NFE = 14x + 3$$

$$= 14(8) + 3$$

$$= 115$$

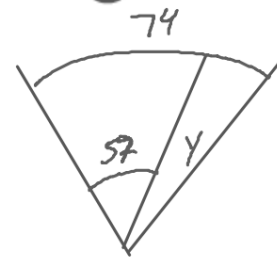
A lighting designer is finalizing the lighting plan for an upcoming production. The spotlight can rotate  $25^\circ$  to the left or right from the center. The beam of light from the spotlight forms a  $22^\circ$  angle. Can the designer use the spotlight to light each of the objects on the stage?



$$x + 22 = 57$$

$$x = 35$$

Table



$$y + 57 = 74$$

$$y = 17$$

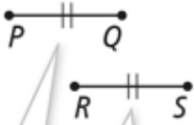
## Congruent Segments and Congruent Angles

Segments that have the same length are congruent segments.



$$\overline{AB} \cong \overline{CD}$$

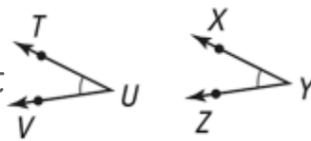
→ Congruent



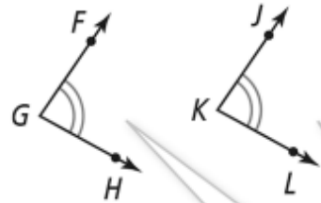
$$\overline{PQ} \cong \overline{RS}$$

The same number of *tick marks* shows congruent segments.

Angles that have the same measure are congruent angles.

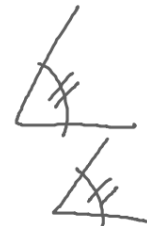


$$\angle TUV \cong \angle XYZ$$



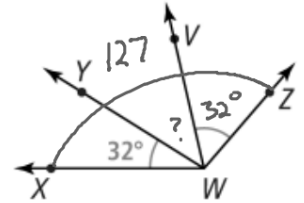
$$\angle FGH \cong \angle JKL$$

The same number of *arc marks* shows congruent angles.



⦿ A. If  $m\angle XWZ = 127$ , what is  $m\angle YWV$ ?

**SOLUTION**



$$m\angle XWY + m\angle YWV + m\angle VWZ = m\angle XWZ$$

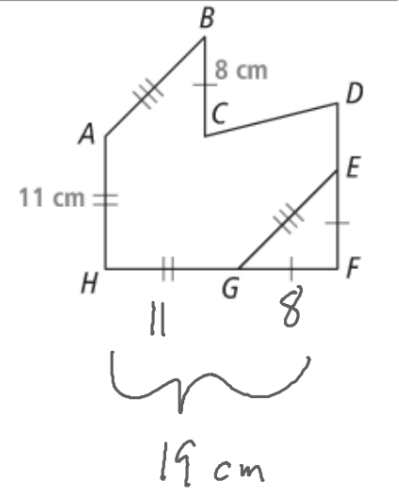
$$32 + ? + 32 = 127$$

$$64 + x = 127$$

$$x = 63$$

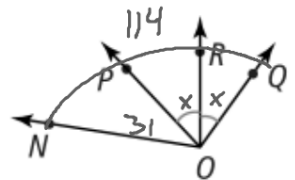
B. What is  $HF$ ?

**SOLUTION**



6. a. If  $m\angle NOP = 31$  and  $m\angle NOQ = 114$ , what is  $m\angle ROQ$ ?

Enter your answer.



$$x + x + 31 = 114$$

$$2x + 31 = 114$$