

Key

$a \parallel b$  and  $p$  is a transversal. Fill in the blanks describing the angle relationships with regard to  $\angle 3$ .

$\angle 3$  and  $\angle 4$  are a linear pair (supplementary)  
 $\angle 3 + \angle 4 = 180$

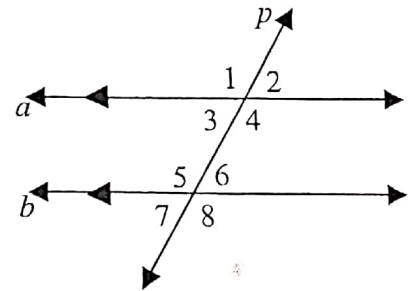
$\angle 3$  and  $\angle 1$  are a linear pair (supplementary)  
 $\angle 3 + \angle 1 = 180$

$\angle 3$  and  $\angle 2$  are vertical angles

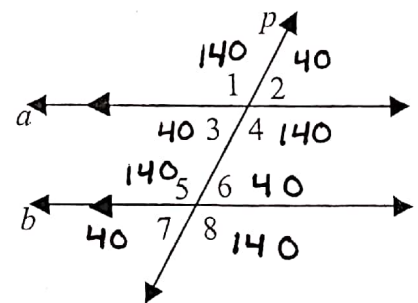
$\angle 3$  and  $\angle 7$  are corresponding angles

$\angle 3$  and  $\angle 6$  are alternate interior angles

$\angle 3$  and  $\angle 5$  are consecutive interior angles (same side) (supplementary)



$a \parallel b$  and  $p$  is a transversal. If  $m\angle 1 = 140^\circ$ , find the measure of each angle giving one reason for each answer.



$m\angle 2 = 40$

$m\angle 3 = 40$

$$\begin{array}{r} 180 \\ -140 \\ \hline 40 \end{array}$$

$m\angle 4 = 140$

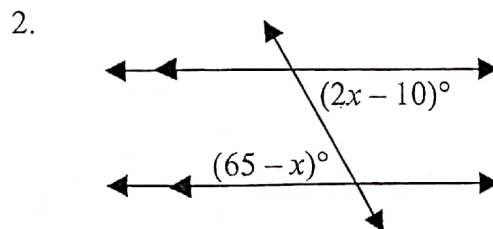
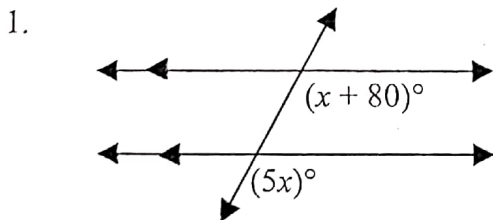
$m\angle 5 = 140$

$m\angle 6 = 40$

$m\angle 7 = 40$

$m\angle 8 = 140$

Identify the type of angles and their relationship. Write the equation used to solve for  $x$ . Then, find the value of  $x$ . Put a box around your answer.



type of angles: Corresponding

type of angles: Alternate Interior

relationship: Congruent

relationship: Congruent

equation:  $5x = x + 80$

equation:  $65 - x = 2x - 10$

$$\begin{array}{r} 5x = x + 80 \\ -x \quad -x \\ \hline 4x = 80 \\ \frac{4x}{4} = \frac{80}{4} \quad \boxed{x = 20} \end{array}$$

$$\begin{array}{r} 65 - x = 2x - 10 \\ +x \quad +x \\ \hline 65 = 3x - 10 \\ +10 \quad +10 \\ \hline 75 = 3x \\ \frac{75}{3} = \frac{3x}{3} \\ \boxed{x = 25} \end{array}$$