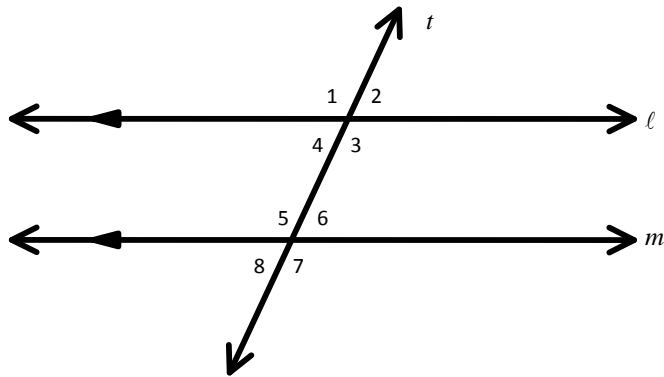


# Parallel Lines and Transversals

$\ell \parallel m$

Transversal  $t$  intersects parallel lines  $\ell$  and  $m$ .



Interior Angles

$\angle 3, \angle 4, \angle 5, \angle 6$

Exterior Angles

$\angle 1, \angle 2, \angle 7, \angle 8$

Vertical Angles

$\angle 1 \cong \angle 3$     $\angle 2 \cong \angle 4$   
 $\angle 5 \cong \angle 7$     $\angle 6 \cong \angle 8$

Corresponding Angles

$\angle 1 \cong \angle 5$     $\angle 2 \cong \angle 6$   
 $\angle 4 \cong \angle 8$     $\angle 3 \cong \angle 7$

Alternate Interior Angles

$\angle 4 \cong \angle 6$   
 $\angle 3 \cong \angle 5$

Alternate Exterior Angles

$\angle 1 \cong \angle 7$   
 $\angle 2 \cong \angle 8$

Linear Pair

$\angle 1 + \angle 2 = 180$     $\angle 5 + \angle 6 = 180$   
 $\angle 2 + \angle 3 = 180$     $\angle 6 + \angle 7 = 180$   
 $\angle 3 + \angle 4 = 180$     $\angle 7 + \angle 8 = 180$   
 $\angle 4 + \angle 5 = 180$     $\angle 8 + \angle 1 = 180$

Consecutive Angles

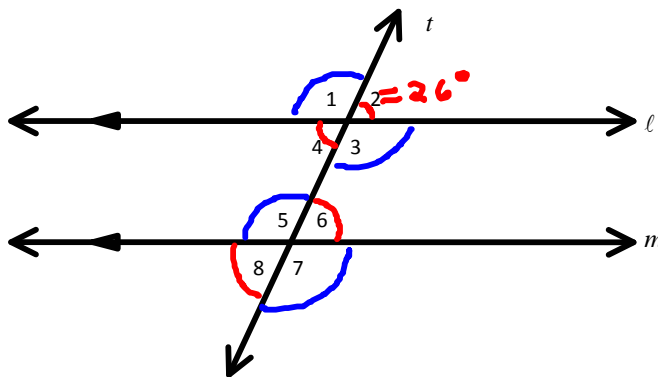
$\angle 4 + \angle 5 = 180$   
 $\angle 3 + \angle 6 = 180$

1. Find the measure of the missing angles if  $m\angle 2 = 26^\circ$ .

$m\angle 4 = 26^\circ$   
 $m\angle 6 = 26^\circ$   
 $m\angle 8 = 26^\circ$

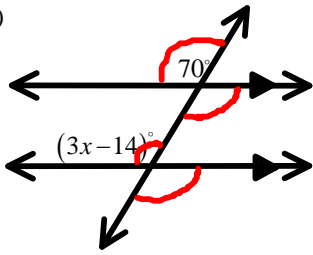
$180 - 26 = 154^\circ$

$m\angle 1 = 154^\circ$   
 $m\angle 3 = 154^\circ$   
 $m\angle 5 = 154^\circ$   
 $m\angle 7 = 154^\circ$



2. Find the value of  $x$ .

a)



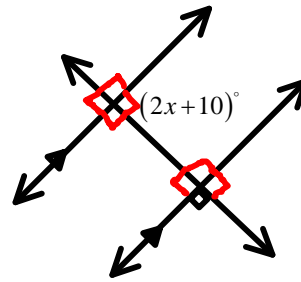
$$3x - 14 = 70$$

$$+14 \quad +14$$

$$\frac{3x}{3} = \frac{84}{3}$$

$$x = 28$$

b)



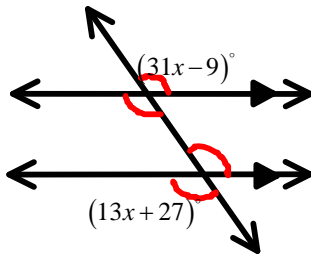
$$2x + 10 = 90$$

$$-10 \quad -10$$

$$\frac{2x}{2} = \frac{80}{2}$$

$$x = 40$$

c)



$$31x - 9 = 13x + 27$$

$$-13x \quad -13x$$

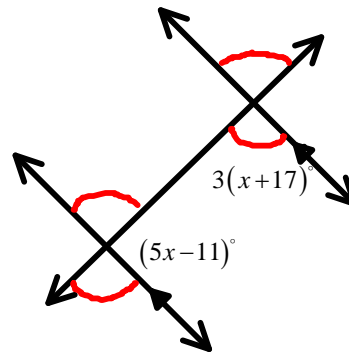
$$18x - 9 = 27$$

$$+9 \quad +9$$

$$\frac{18x}{18} = \frac{36}{18}$$

$$x = 2$$

d)



$$3(x + 17) + (5x - 11) = 180$$

$$\underline{3x} + \underline{51} + \underline{5x} - \underline{11} = 180$$

$$8x + 40 = 180$$

$$-40 \quad -40$$

$$\frac{8x}{8} = \frac{140}{8}$$

$$x = 17.5$$