

## 3.2 Practice Solutions

Directions: Identify all the numbered angles that are congruent to the given angle. JUSTIFY your answer.

1)

$\angle 4 \rightarrow$  CORR L'S  
 $\angle 1 \rightarrow$  Vertical L's  
 $\angle 7 \rightarrow$  ALT. INT L'S

2)

$\angle 3 \rightarrow$  ALT. INT L'S  
 $\angle 1 \rightarrow$  CORR L'S

Directions: Solve for x.

3)

$$\begin{array}{r}
 15x + 8 = 128 \\
 -8 \quad -8 \\
 \hline
 15x = 120 \\
 \frac{15x}{15} = \frac{120}{15} \\
 x = 8
 \end{array}$$

4)

$$\begin{array}{r}
 -1 + 11x + 115 = 180 \\
 11x + 114 = 180 \\
 -114 \quad -114 \\
 \hline
 11x = 66 \\
 \frac{11x}{11} = \frac{66}{11} \\
 x = 6
 \end{array}$$

5)

$$\begin{array}{r}
 20x - 6 = 114 \\
 +6 \quad +6 \\
 \hline
 20x = 120 \\
 \frac{20x}{20} = \frac{120}{20} \\
 x = 6
 \end{array}$$

6)

$$\begin{array}{r}
 120 = 15x \\
 \frac{120}{15} = \frac{15x}{15} \\
 x = 8
 \end{array}$$

Directions: Find the measure of the angle indicated in bold.

7)

$$\begin{array}{r}
 10x - 10 = 8x + 10 \\
 -8x \quad -8x \\
 \hline
 2x - 10 = 10 \\
 +10 \quad +10 \\
 \hline
 2x = 20 \\
 \frac{2x}{2} = \frac{20}{2} \\
 x = 10
 \end{array}$$

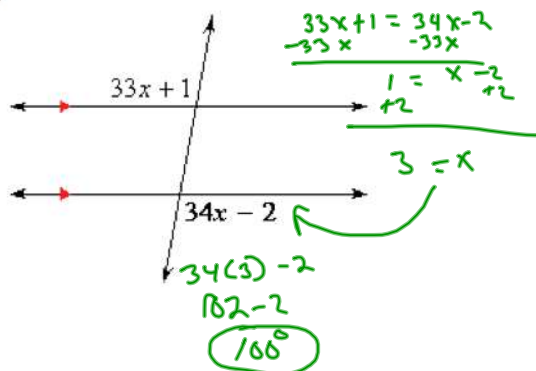
$8(10) + 10 = 90$   
 $80 + 10 = 90$   
**90°**

8)

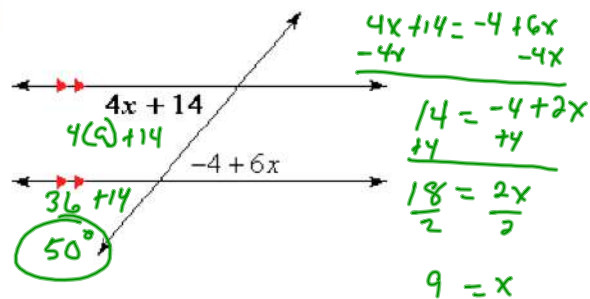
$$\begin{array}{r}
 (x + 121) + (x + 81) = 180 \\
 2x + 202 = 180 \\
 -202 \quad -202 \\
 \hline
 2x = -22 \\
 \frac{2x}{2} = \frac{-22}{2} \\
 x = -11
 \end{array}$$

$-11 + 121 = 110$   
**110°**

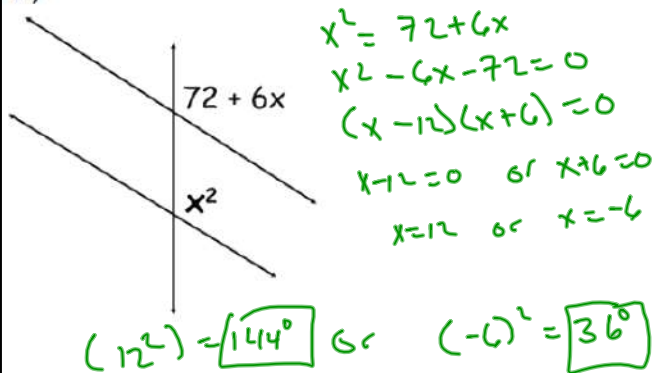
9)



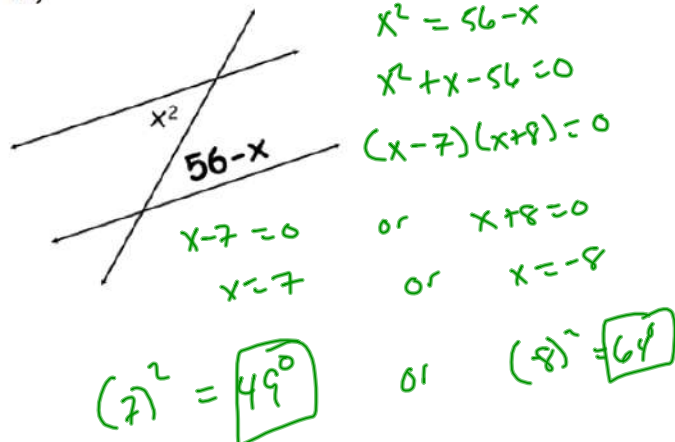
10)



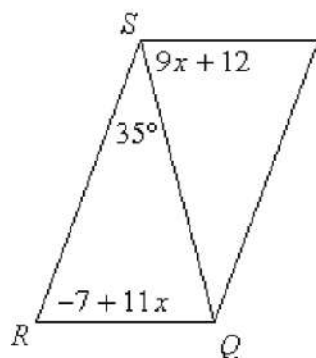
11)



12)



3) Solve for  $x$ . Opposite sides of the figure are parallel.



$$35 + (9x + 12) + (-7 + 11x) = 180$$

$$90 + 20x = 180$$

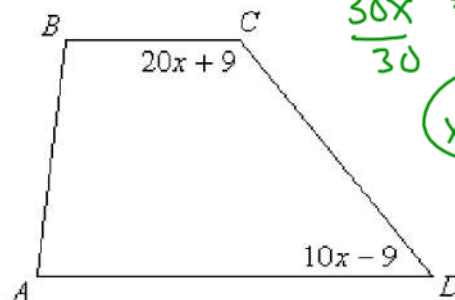
$$-90 \quad -90$$

$$20x = 90$$

$$\frac{20x}{20} = \frac{90}{20}$$

$$x = 7$$

14) Solve for  $x$ . The top and bottom sides are parallel.



$$(20x + 9) + (10x - 9) = 180$$

$$30x = 180$$

$$\frac{30x}{30} = \frac{180}{30}$$

$$x = 6$$