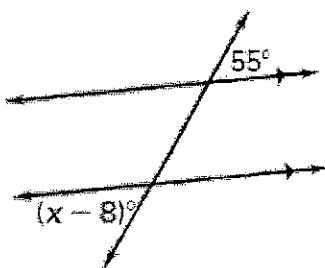


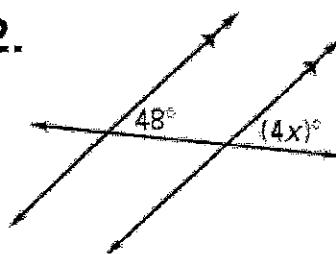
**Using Properties of Parallel Lines cut by a Transversal:**  
 Use properties of parallel lines to find the value of  $x$ .  
 Also, state your reasoning.

1.



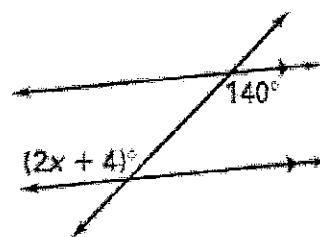
$$\begin{aligned} x - 8 &= 55 \\ +8 &\quad +8 \\ \hline x &= 63 \end{aligned}$$

2.



$$\begin{aligned} 48 &= 4x \\ \frac{48}{4} &= \frac{4x}{4} \\ 12 &= x \end{aligned}$$

3.



$$\begin{aligned} 2x + 4 &= 140 \\ -4 &\quad -4 \\ \hline 2x &= 136 \\ \frac{2x}{2} &= \frac{136}{2} \\ x &= 68 \end{aligned}$$

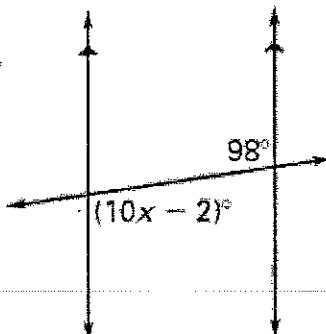
$x = 63$  because  
Alt. Ext. L's  
are congruent

$x = 12$  because  
Corresponding L's  
are congruent

$x = 68$  because  
Alt int. L's  
are congruent

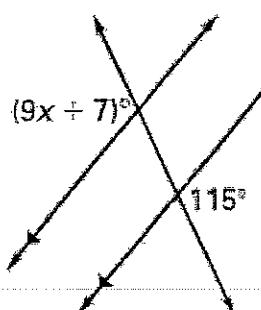
You Practice:

4.



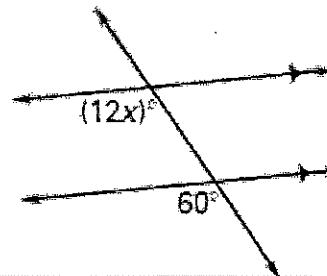
$$\begin{aligned} 10x - 2 &= 98 \\ +2 &\quad +2 \\ \hline 10x &= 100 \\ \frac{10x}{10} &= \frac{100}{10} \\ x &= 10 \end{aligned}$$

5.



$$\begin{aligned} 9x + 7 &= 115 \\ -7 &\quad -7 \\ \hline 9x &= 108 \\ \frac{9x}{9} &= \frac{108}{9} \\ x &= 12 \end{aligned}$$

6.



$$\begin{aligned} 12x &= 60 \\ \frac{12x}{12} &= \frac{60}{12} \\ x &= 5 \end{aligned}$$

$x = 10$  because  
alt.int L's  
are congruent

$x = 12$  because  
alt.ext. L's  
are congruent

$x = 5$  because  
corresponding L's are congruent

7.

$$14x - 7 + 103 = 180$$

$$\begin{array}{r} 14x + 110 \\ - 110 \hline 14x \end{array}$$

$$\frac{14x}{14} = \frac{70}{14}$$

$$x = 5$$

$x = 5$  because  
same side ext L's  
are supplementary

8.

$$4x - 3 + 135 = 180$$

$$\begin{array}{r} 4x + 132 \\ - 132 \hline 4x \end{array}$$

$$\frac{4x}{4} = \frac{48}{4}$$

$$x = 12$$

$x = 12$  because  
linear pair of  
an alt. int L.  
supplementary

9.

$$5x + 2 + 53 = 180$$

$$\begin{array}{r} 5x + 55 \\ - 55 \hline 5x \end{array}$$

$$\frac{5x}{5} = \frac{125}{5}$$

$$x = 25$$

$x = 25$  because  
linear pair of  
an alt. int L.  
supplementary

## TICKET OUT:

1.

$$14x - 4 = 13x + 2$$

$$\begin{array}{r} -13x \quad -13x \\ \hline x - 4 = 2 \end{array}$$

$$\begin{array}{r} +4 \quad +4 \\ \hline x = 6 \end{array}$$

$x = 6$  because  
vertical angles all  $\cong$

$$\begin{array}{r} 14x - 4 = 13x + 2 \\ -13x \quad -13x \\ \hline x - 4 = 2 \\ +4 \quad +4 \\ \hline x = 6 \end{array}$$

2.

$$(6x + 9) + 9x + 6 = 180$$

$$\begin{array}{r} 6x + 9 + 9x + 6 \\ \hline 15x + 15 = 180 \end{array}$$

$$\begin{array}{r} -15 \quad -15 \\ \hline 15x = 165 \end{array}$$

$$\frac{15x}{15} = \frac{165}{15}$$

$$x = 11$$

$x = 11$  because  
linear pairs are  
supplementary

$$\begin{array}{r} 6x + 9 + 9x + 6 \\ \hline 15x + 15 = 180 \end{array}$$

$$\begin{array}{r} -15 \quad -15 \\ \hline 15x = 165 \end{array}$$

$$\frac{15x}{15} = \frac{165}{15}$$

$$x = 11$$