

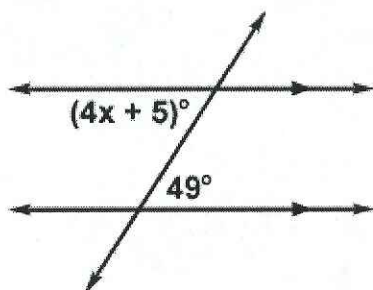
Name:



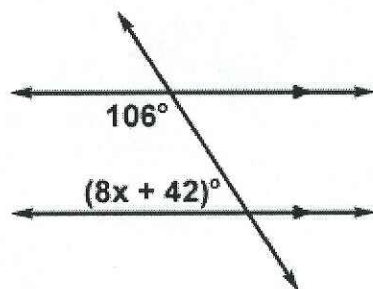
Parallel Lines - Given Lines are Parallel

I. In each of the following diagrams, find the value of x.

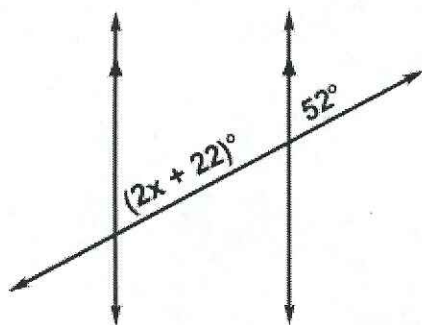
1.



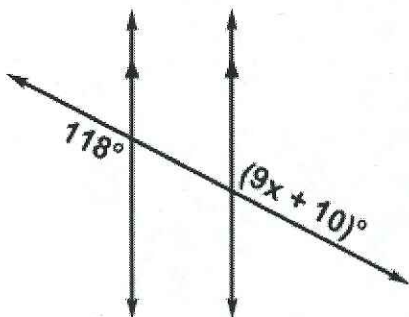
2.



3.



4.



Common Core / Grade 8
Chapter 8
Given Lines are Parallel
79065

① Alt Interior

$$4x + 5 = 49$$

$$\begin{array}{r} 4x = 44 \\ \underline{\quad} \\ 4 \quad \quad 4 \end{array}$$

$$x = 11$$

plug 11 in for x to determine angle and check

$$(4(11)) + 5 = 49$$

② Corresponding Interior (add up to 180)

$$106 + 8x + 42 = 180$$

$$\begin{array}{r} 148 + 8x = 180 \\ \underline{-148} \quad \quad \underline{-148} \end{array}$$

$$\frac{8x}{8} = \frac{32}{8}$$

$$x = 4$$

$$8(4) + 42 =$$

$$32 + 42 = 74$$

④ Alt Interior → Angles equal

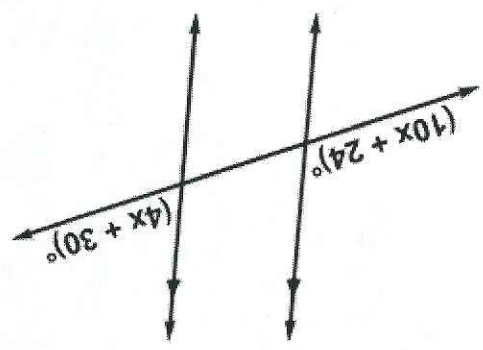
$$\begin{array}{r} 118 = 9x + 10 \\ \underline{-10} \quad \quad \underline{-10} \end{array}$$

$$\frac{108}{9} = \frac{9x}{9}$$

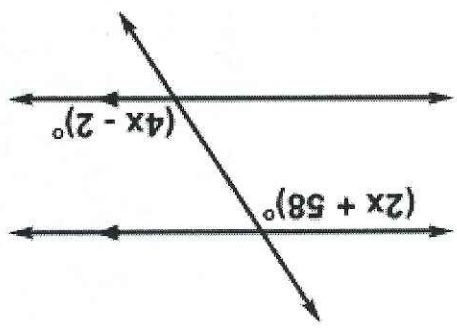
$$12 = x$$

PLUG in check $9(12) + 10 = 108 + 10 = 118$

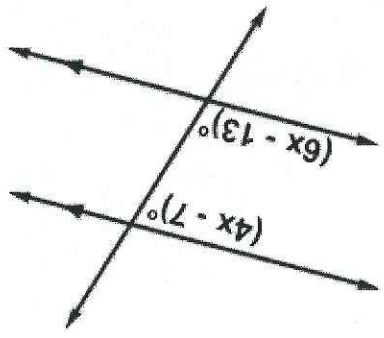
8. Corresponding angles 114° and 66°
 $x = 9$



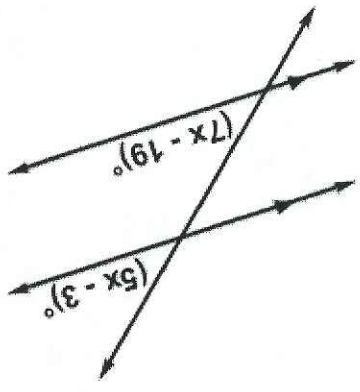
8.



7.



6.



5.

11. In each of the following diagrams, find the value of x and the measure of each angle.

5. Corresponding angles equal

$$\begin{array}{r}
 5x - 3 = 7x - 19 \\
 +19 \quad +19 \\
 \hline
 5x + 16 = 7x \\
 -5x \quad -5x \\
 \hline
 16 = 2x \\
 \frac{16}{2} = \frac{2x}{2} \\
 8 = x
 \end{array}$$

add 19 to each side
 subtract 5x
 divide by 2

plug to check

$$\begin{array}{l}
 5(8) - 3 = 7(8) - 19 \\
 40 - 3 = 56 - 19 \\
 37 = 37
 \end{array}$$

37°

6. $x = 20$ angles 73° & 107°

7. Alt. Interior angles equal

$$\begin{array}{r}
 2x + 58 = 4x - 2 \\
 -2x \quad -2x \\
 \hline
 58 = 2x - 2 \\
 +2 \quad +2 \\
 \hline
 60 = 2x \\
 \frac{60}{2} = \frac{2x}{2} \\
 30 = x
 \end{array}$$

subtract 2x from each side
 add 2 to each side
 divide by 2

answers = 118°