

Review 3.4

Write the equation of the line in slope-intercept form.

1. $m = 5; b = -3$

$$y = mx + b$$
$$y = 5x - 3$$

2. $m = 4$ passing through $(-1, 6)$

$$y - y_1 = m(x - x_1)$$
$$y - 6 = 4(x + 1)$$
$$y + b = 4x + 4$$
$$\begin{array}{r} +b \\ \hline \end{array}$$

3. $m = 1/3$ passing through $(5, -6)$

$$y + b = \frac{1}{3}(x - 5)$$
$$y + b = \frac{1}{3}x - \frac{5}{3}$$
$$\begin{array}{r} -b \\ \hline \end{array}$$
$$y = \frac{1}{3}x - \frac{23}{3}$$

4. containing $(9, -4), (10, 5)$

$$x, y = 4x + 10$$
$$y + 4 = 9(x - 9)$$
$$y - 4 = 9x - 81$$
$$\begin{array}{r} -4 \\ \hline \end{array}$$
$$y = 9x - 85$$
$$m = \frac{5 - (-4)}{10 - 9} = \frac{9}{1}$$

3.5 Proving Lines Parallel

If...

- 1.) Alternate Interior angles are \cong , then the lines are parallel.
(**Alternate Interior Angles Converse**)
- 2.) Alternate Exterior angles are \cong , then the lines are parallel.
(**Alternate Exterior Angles Converse**)
- 3.) Consecutive Interior angles are supplementary, then the lines are parallel.
(**Consecutive Interior Angles Converse**)
- 4.) Corresponding angles are \cong , then the lines are parallel.
(**Corresponding Angles Converse**)

Examples:

Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

1. $\angle 16 \cong \angle 3$

$k \parallel m$; Corresponding Angles Converse

2. $\angle 4 \cong \angle 13$

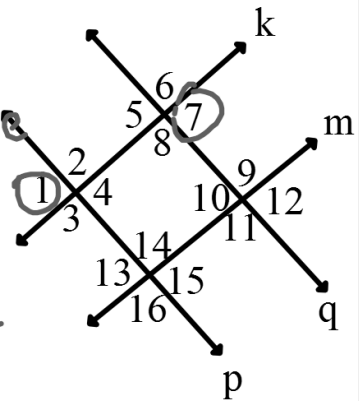
$k \parallel m$; Alt. Interior Angles Converse

3. $m\angle 14 + m\angle 10 = 180$

$p \parallel q$; Consecutive Interior Angles Converse

4. $\angle 1 \cong \angle 7$

$p \parallel q$; Alt. Exterior Angles Converse



Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

1. $\angle 5 \cong \angle 7$

_____ \parallel _____ ; No lines can be proven parallel

2. $m\angle 15 + m\angle 11 = 180$

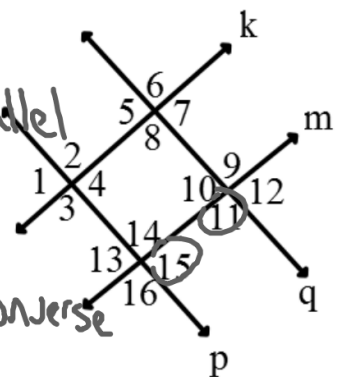
$p \parallel q$; Consecutive Interior Angles Converse

3. $\angle 13 \cong \angle 12$

$p \parallel q$; Alt. Exterior Angles Converse

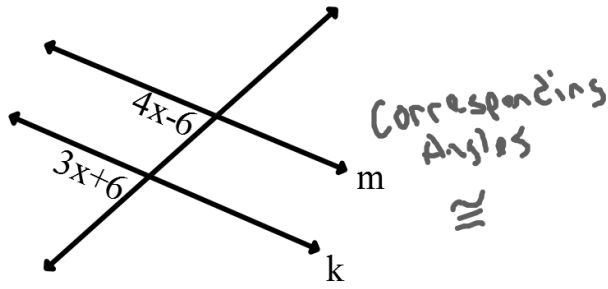
4. $m\angle 1 + m\angle 2 = 180$

_____ \parallel _____ ; No lines can be proven \parallel



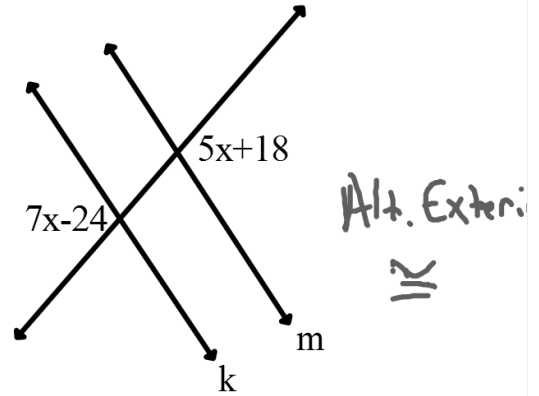
Find x so that $k \parallel m$.

1.



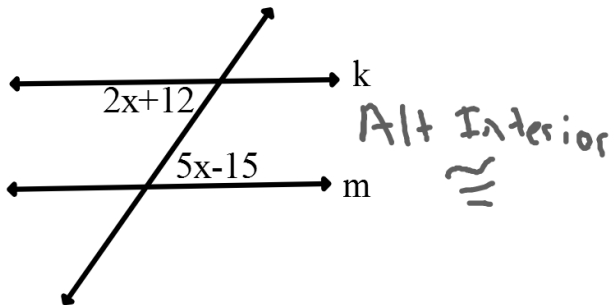
$$\begin{array}{r} 3x+6 = 4x-6 \\ -3x \quad -3x \\ \hline 6 = x-6 \\ +6 \quad +6 \\ \hline x = 12 \end{array}$$

2.



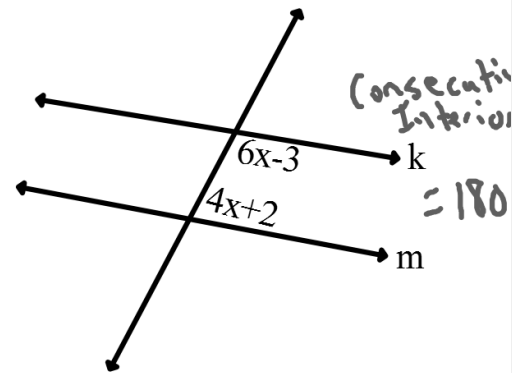
$$\begin{array}{r} 7x-24 = 5x+18 \\ -5x \quad -5x \\ \hline 2x-24 = 18 \\ +24 \quad +24 \\ \hline 2x = 42 \\ \frac{2x}{2} = \frac{42}{2} \quad x = 21 \end{array}$$

3.



$$\begin{array}{r} 2x+12 = 5x-15 \\ -3x \quad -3x \\ \hline 24 = -3x \\ \div -3 \quad \div -3 \\ \hline x = 9 \end{array}$$

4.



$$\begin{array}{r} 6x-3 + 4x+2 = 180 \\ 10x-1 = 180 \\ +1 \quad +1 \\ \hline 10x = 181 \\ \div 10 \quad \div 10 \\ \hline x = 18.1 \end{array}$$

Turn-in:
Workbook 3.5 (1-4, 5, 7)

HW:
p.210-211 (1-5, 8-21)

