

Name: Key

Date: _____

Equations of Parallel and Perpendicular Lines Homework - Day 2

A. Determine whether the lines are parallel, perpendicular, or neither given the equations.

$$\begin{aligned} 1) \quad 6x - 12y &= 24; \\ -12y &= -6x + 24 \\ y &= \frac{1}{2}x - 2 \end{aligned}$$

$$\begin{aligned} 4x + 2y &= 8 \\ 2y &= -4x + 8 \\ y &= -2x + 4 \end{aligned}$$

Perp.

$$\begin{aligned} 2) \quad 4x - y &= 5; \\ -y &= -4x + 5 \\ y &= 4x - 5 \end{aligned}$$

$$\begin{aligned} 3x + 12y &= -6 \\ 12y &= -3x - 6 \\ y &= -\frac{1}{4}x - \frac{1}{2} \end{aligned}$$

Perp.

$$\begin{aligned} 3) \quad -2x + 7y &= -14; \\ 7y &= 2x - 14 \\ y &= \frac{2}{7}x - 2 \end{aligned}$$

$$\begin{aligned} 4x &= 14y \\ \frac{2}{7}x &= \frac{7}{4}y \end{aligned}$$

~~Neither~~

Parallel

B. Write the equation in slope intercept form of the line parallel and line perpendicular to given line through given point.

4) $y = 4x + 7$ through $(-2, -9)$

Parallel

$y = 4x - 1$

$$\begin{aligned} -9 &= 4(-2) + b \\ -9 &= -8 + b \\ -1 &= b \end{aligned}$$

Perpendicular

$y = -\frac{1}{4}x - \frac{19}{2}$

$$\begin{aligned} -9 &= -\frac{1}{4}(-2) + b \\ -9 &= \frac{1}{2} + b \\ b &= -\frac{19}{2} \end{aligned}$$

5) $2x - 5y = 10$ through $(3, -7)$

$$\begin{aligned} -5y &= -2x + 10 \\ y &= \frac{2}{5}x - 2 \end{aligned}$$

$y = \frac{2}{5}x - \frac{41}{5}$

$$\begin{aligned} -7 &= \frac{2}{5}(3) + b \\ -7 &= \frac{6}{5} + b \\ -\frac{41}{5} &= b \end{aligned}$$

$y = -\frac{5}{2}x + \frac{1}{2}$

$$\begin{aligned} -7 &= -\frac{5}{2}(3) + b \\ -7 &= -\frac{15}{2} + b \\ \frac{1}{2} &= b \end{aligned}$$

6) $3x + 4y = 16$ through $(12, -5)$

$$\begin{aligned} 4y &= -3x + 16 \\ y &= -\frac{3}{4}x + 4 \end{aligned}$$

$y = -\frac{3}{4}x + 4$

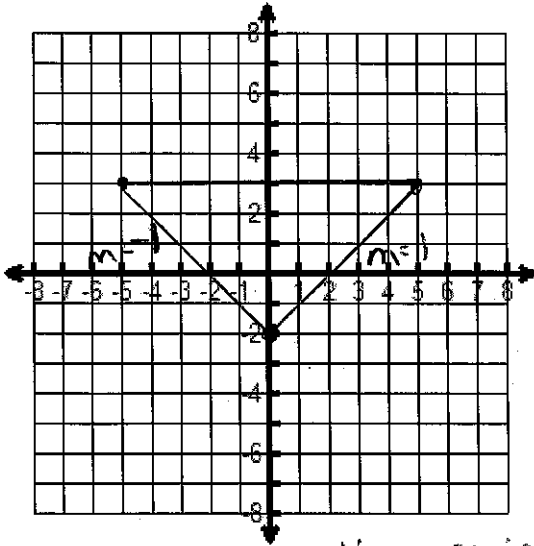
$$\begin{aligned} -5 &= (-\frac{3}{4})(12) + b \\ -5 &= -9 + b \\ b &= 4 \end{aligned}$$

$y = \frac{4}{3}x - 21$

$$\begin{aligned} -5 &= (\frac{4}{3})(12) + b \\ -5 &= 16 + b \\ b &= -21 \end{aligned}$$

C. State whether the 3 points form a right triangle. If so, which angle is the right angle?

7) A(-5, 3) B(0, -2) C(5, 3)



Slopes are negative reciprocals,
So yes! for both graphs!

8) A(-2, 4) B(2, 1) C(1, 8)

