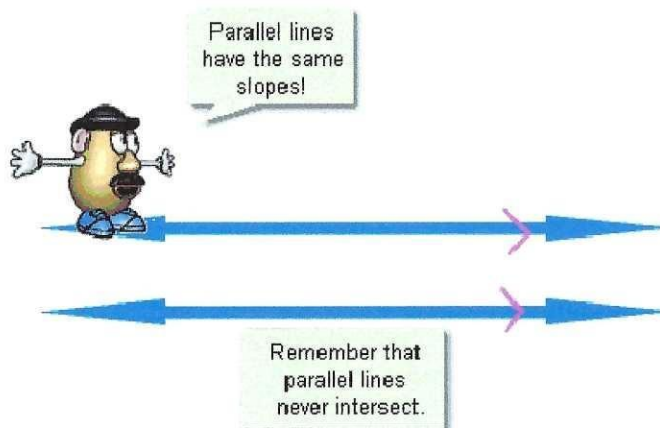


Name _____
Mrs. Roubos

Date _____
8R Period _____

Parallel vs Perpendicular Lines DO NOW

Parallel Lines: (same slope!)



$$\begin{aligned}y &= 3x + 5 \\y &= 3x - 7 \\y &= 3x + 0.5 \\y &= 3x\end{aligned}$$

These lines are ALL parallel.
They all have the same slope (m).
(Remember $y = mx + b$.)

Examples:

1) What is the slope of a line that is parallel to: $y = 5x + 3$

2) Which equation is parallel to $y = 3x + 4$?

a) $y = -3x + 6$

b) $y = 4x + 3$

c) $y = 3x + 5$

d) $y = \frac{1}{3}x + 2$

3) Which equation is NOT parallel to $y = 2x + 6$

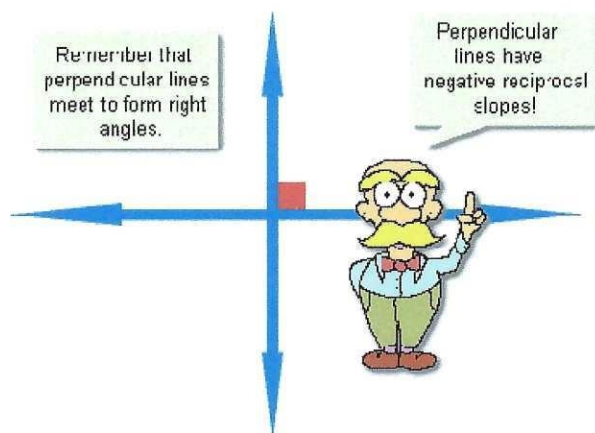
a) $y = 2x + 3$

b) $2y = 4x + 8$

c) $y = 2x + 7$

d) $y = -2x + 6$

Perpendicular Lines: (negative reciprocal slopes!)



Perpendicular lines have negative reciprocal slopes.

To find a negative reciprocal of a number, flip the number over (invert) and negate that value.

$$\frac{1}{2} \rightarrow -\frac{2}{1} = -2$$

$$-\frac{4}{5} \rightarrow \frac{5}{4}$$

$$3 = \frac{3}{1} \rightarrow -\frac{1}{3}$$

$$-5 \rightarrow \frac{1}{5}$$

$$y = 4x + 7$$

$$y = -\frac{1}{4}x - 6$$

These lines are perpendicular.
Their slopes (m) are negative reciprocals.

(Remember $y = mx + b$.)

Examples:

1) What is the slope of a line that is perpendicular to $y = 6x + 7$

2) What is the slope of a line that is perpendicular to $y = \frac{2}{3}x - 3$