REVIEW: Parallel and Perpendicular Lines

Name _____

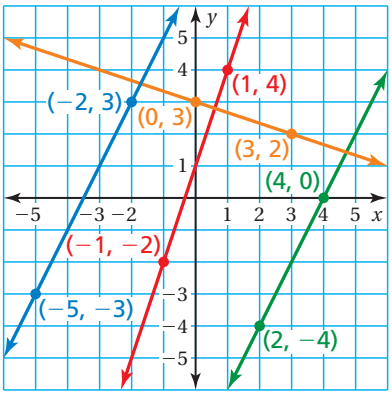
Key Concept and Vocabulary

Lines in the same plane that do not intersect are called **parallel lines.** Two lines are parallel if they have the same slope.

Lines in the same plane that intersect at right angles are called **perpendicular lines.** Two lines are perpendicular if and only if the product of their slopes is -1.

Skill Example

1.



Blue line: $\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - (-3)}{-2 - (-5)} = \frac{6}{3} = 2$

Red line: $\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - (-2)}{1 - (-1)} = \frac{6}{2} = 3$

Green line: $\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{0 - (-4)}{4 - 2} = \frac{4}{2} = 2$

Orange line: $\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 3}{3 - 0} = -\frac{1}{3}$

The blue and green lines are parallel because they have the same slope.

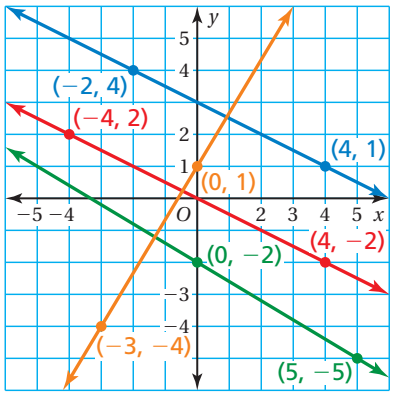
The red and orange lines are perpendicular because $3 \cdot \left(-\frac{1}{3}\right) = -1$.

PRACTICE MAKES *PURR*-FECT™

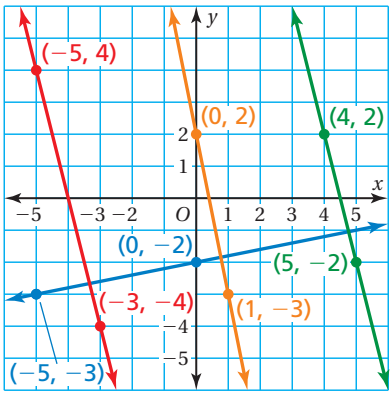
Check your answers at BigIdeasMath.com.

Determine which lines are parallel and which lines are perpendicular. Explain.

2.



3.



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