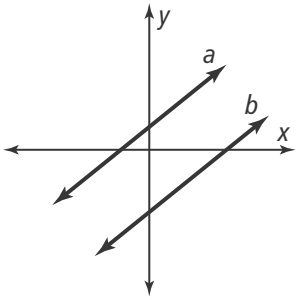
2-4 Reteach to Build Understanding

Slopes of Parallel and Perpendicular Lines

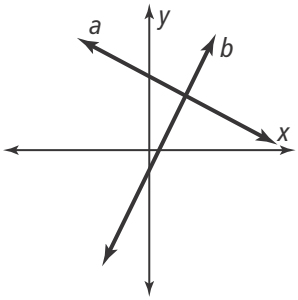
1. Match each set of lines with the correct statement.



Line *a* is parallel to line *b.*

$a \parallel b$

The slope of line a times the slope of line *b* equals −1.



Line *a* is perpendicular to line *b.*

$a \perp b$

The slope of line *a* equals the slope of line *b*.

2. Fill in the blanks to find the equation of the line perpendicular to $y = \frac{1}{3}x - 2$ through the point (1, 4).

The slope of the given line is _____. Perpendicular lines have slopes with a product of _____, so the slope of the perpendicular line is _____. To write the equation of the perpendicular line, use the _____ form to solve for the *y*-intercept.

$$y = mx + b$$

$$\_\_\_\_\_ = -3\ (\_\_\_\_\_) + b$$

$$b = \_\_\_\_\_$$

The equation of the line perpendicular to $y = \frac{1}{3}x - 2$ passing through the point (1, 4) is _____.

3. Danielle says that the line perpendicular to $y = 5x + 9$ and passing through the point (3, 4) is $y = 5x - 11$. What is Danielle's error? How would you correct the error?