3.6 Slope-Intercept Form **Math 55 Professor Busken**

Objectives

- Use the slope and the y-intercept to graph a line.
- Write linear equations in slope-intercept form.
- Determine if two lines are parallel or perpendicular.

Exercises

1. Determine the slope and y-intercept of each line.

   a) $y = \frac{3}{2}x - 7$ b) $y = -\frac{4}{3}x + 8$ c) $y - 4x = {}^{-}1$ d) $y = 2x$

2. Graph the lines in exercises 1a – 1d using the y-intercept and the slope.

3. Find the slope-intercept equation of a line with the indicated slope and y-intercept.

   a) Slope 3; y-intercept $(0, 5)$ b) Slope -4; y-intercept $\left(0, -\frac{3}{2}\right)$

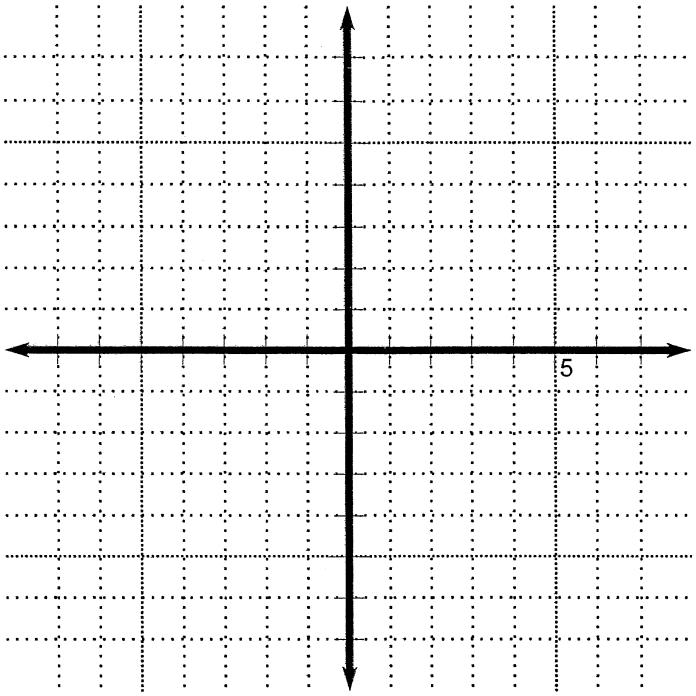
   c) Slope $\frac{3}{5}$; y-intercept $(0, 6)$ d) Slope 0; y-intercept $(0, 3)$

4. Determine, without graphing, whether the graphs of the two equations are parallel, perpendicular or neither.

   a) $\begin{cases} y + 6x = 1 \\ x - 6y = 12 \end{cases}$ b) $\begin{cases} x + y = 13 \\ 3x - y = 13 \end{cases}$ c) $\begin{cases} 6y = -4x - 2 \\ 3y + 2x = 21 \end{cases}$

   d) $\begin{cases} x + y = 3 \\ y - x = 4 \end{cases}$ e) $\begin{cases} -x + 2y = -2 \\ 2x = 4y + 3 \end{cases}$ f) $\begin{cases} \frac{2}{3}x + \frac{1}{4}y = -\frac{3}{2} \\ \frac{3}{8}x + y = 1 \end{cases}$

Answers: 1a) slope $\frac{3}{2}$, y-intercept $(0, -7)$ 1b) slope $-\frac{4}{3}$, y-intercept $(0, 8)$ 1c) slope 4, y-intercept $(0, -1)$
1d) slope 2, y-intercept $(0, 0)$ 3a) $y = 3x + 5$ 3b) $y = -4x - \frac{3}{2}$ 3c) $y = \frac{3}{5}x + 6$ 3d) $y = 3$
4a) perpendicular 4b) neither 4c) parallel 4d) perpendicular 4e) parallel 4f) neither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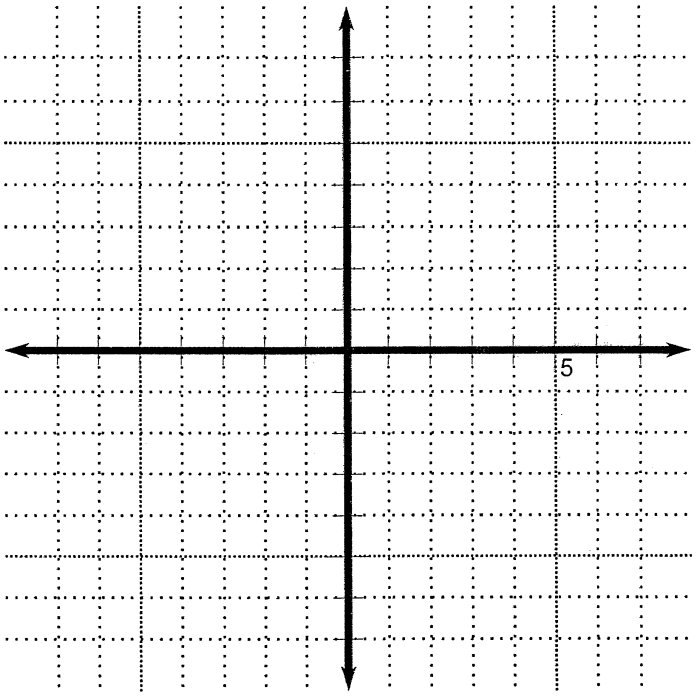
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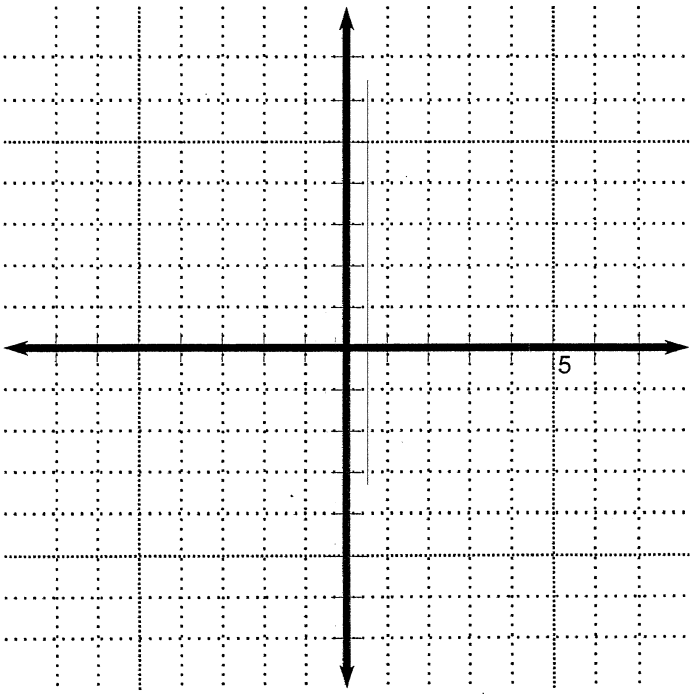
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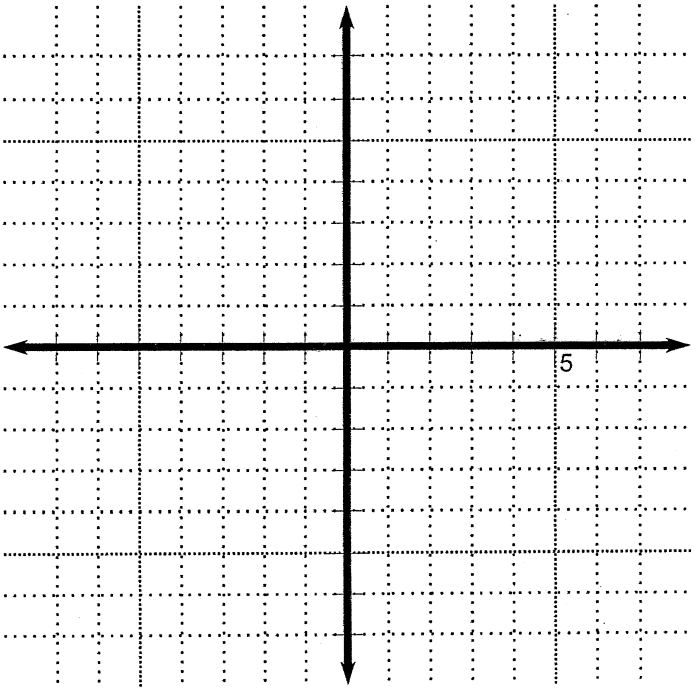
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