

## Monday, January 7, 2013

### Agenda

- No TISK or MM
- Lesson 11-4 part I
- HW: start p. 558 #10-20 all

Please be ready to begin taking notes when the bell rings.

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### § 11.4 Point-Slope Form of a Line

- Another way to write equations is to use what's called Point-Slope form.
- What do you need to write an equation in this form?
  - A point  $(x_1, y_1)$
  - A slope  $(m)$
- Then, point-slope form of a line is:
  - $y - y_1 = m(x - x_1)$

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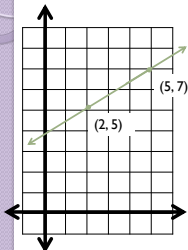
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### Example.

Write the equation of the line in point-slope form.



1) Find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 5}{5 - 2} = \frac{2}{3}$$

2) Choose a point.

$$\begin{matrix} (2, 5) & (5, 7) \\ x_1 & x_1 \\ y_1 & y_1 \end{matrix}$$

3) Write the equation.

$$y - y_1 = m(x - x_1)$$

$$y - 5 = \frac{2}{3}(x - 2) \quad y - 7 = \frac{2}{3}(x - 5)$$

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### You Try It.

Write an equation of a line in point-slope form that passes through the points  $(-2, 3)$  and  $(-1, 1)$ .

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### You Try It.

Write an equation of the line in point-slope form that passes through the point  $(-1, -6)$  with a slope of  $-\frac{1}{3}$ .

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### Compare Point-Slope & Slope-Intercept Forms

Write the equation of the line in point-slope form. Then, write the same equation in slope-intercept form.

$(-3, -1), m = 4$	$y = mx + b$
$y - y_1 = m(x - x_1)$	$y + 1 = 4(x + 3)$
$y - 1 = 4(x - 3)$	$y + 1 = 4x + 12$
$y + 1 = 4(x + 3)$	$\begin{matrix} -1 & -1 \\ y = 4x + 11 \end{matrix}$

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