Section 5-4
Point - Slope Form

Student will be able to write and graph linear equations in point-slope form.

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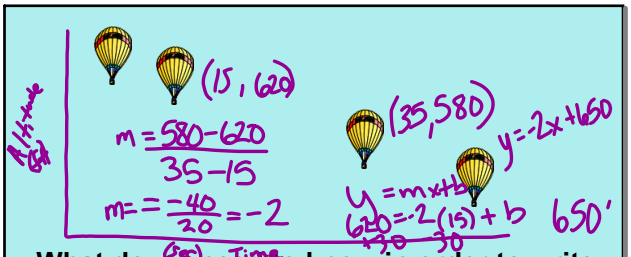

What do we need to know in order to write the equation of the line of the hot air balloon's path in slope-intercept form?

What do the different parts of the equation represent?

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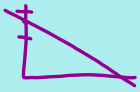
We learned how to find the equation of a line by using the slope and the y-intercept.

Sometimes the y-intercept is unknown, so we will learn to find the equation of a line without using the y-intercept.



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What is the slope formula? Write it without a fraction bar.

video

$(x-x_1)m = \frac{y-y_1}{x-x}(x-x_1)$

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

Pt. Slope Form

This is called point slope form.

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Point-Slope Form of a Linear Equation:

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

m = slope
goes through the point (x_1, y_1)

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Write the equation of the line that passes through (8, -4) and has a slope of -2. (hint: just plug in)

$y - y_1 = m(x - x_1)$
$y + (+4) = -2(x - 8)$
$y + 4 = -2(x - 8)$
$y + 4 = -2x + 16$
$-4 \quad -4$
$y = -2x + 12$

$y = mx + b$
$-4 = -2(8) + b$
$-4 = -16 + b$
$+16 \quad +16$
$12 = b$
$y = -2x + 12$

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What is the graph of the following?

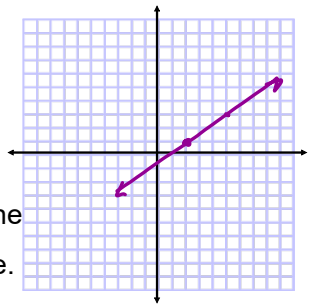
$y - y_1 = m(x - x_1)$

$y - 1 = \frac{2}{3}(x - 2)$

slope: $\frac{2}{3}$

point: $(2, 1)$

Plot point first and then use slope from there.



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Find the equation of the line.

Slope: $\frac{7}{3}$

Point: $y+3=\frac{7}{3}(x+2)$

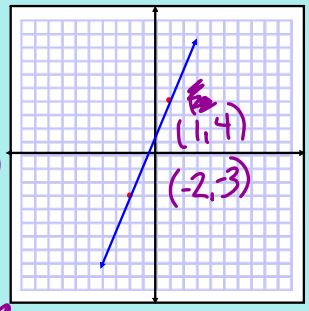
Equation:

$y-4=\frac{7}{3}(x-1)$

$y-4=\frac{7}{3}x-\frac{7}{3}$

$+4 \quad +\frac{12}{3}$

$y=\frac{7}{3}x+\frac{5}{3}$



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The table shows the amount of time that Steve works and how much he makes.

Hours Worked	Wages
5	$130
10	$210
15	$290
20	$370

$\frac{210-130}{10-5} = \frac{80}{5}$

$y = \$16/hr + 50$

What equation, in slope-intercept form, gives you Steve's wage at any given time? What do the slope and y-intercept represent?

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Hwk: pg. 318 - 319
#10, 14, 15, 18-26 evens, 29, 32-35

Quiz tomorrow over 5.1-5.4

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