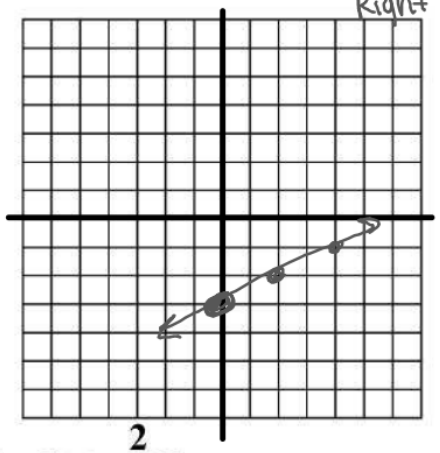
Sec1 H	Notes 1-5 Creating Linear Equations (Part 1)	Unit 1

Warm-Up- Graph each equations.

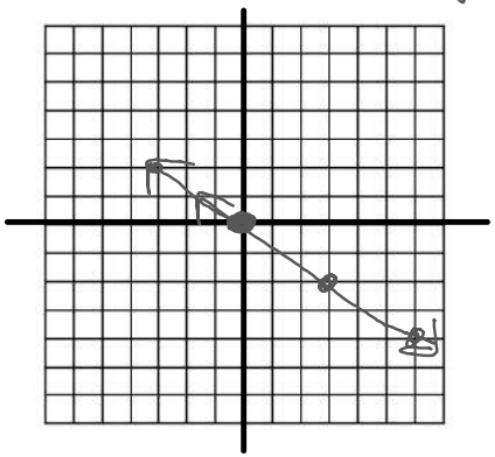
1. $y = \frac{1}{2}x - 3$

up 1
Right 2

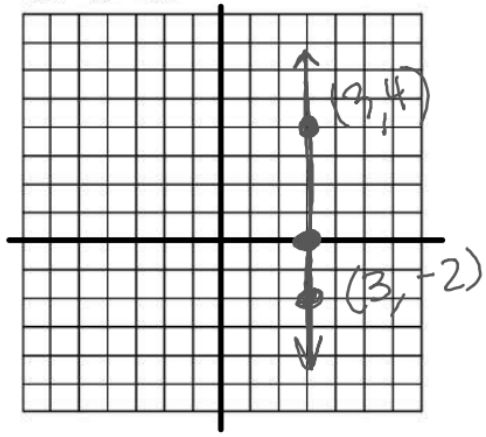


2. $y = -\frac{2}{3}x + 0$

Down 2
Right 3



3. $x = 3$

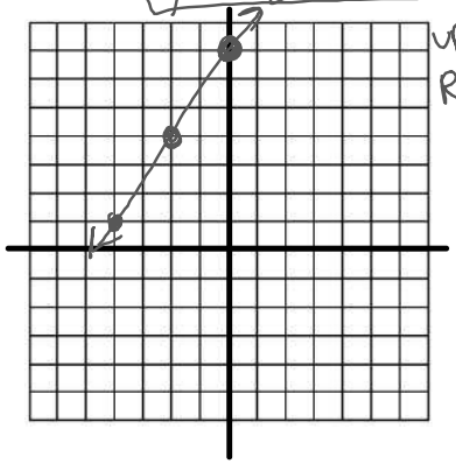


4. $3x - 2y = -14$

$-3x \quad -3x$

$\frac{-2y}{-2} = \frac{-3x - 14}{-2}$

$y = \frac{3}{2}x + 7$



up 3
Right 2

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Slope-Intercept Form-

$y = mx + b$

$y = b + mx$

Initial Value- b

what you start at (or with)

what y when $x = 0$

Constant Rate of Change- m

- what you are gaining or losing (adding or subtracting)
- how much y changes for each x

Example 1: Writing equations in 2 ways:

A. $y = 2x + 6$ $y = 6 + 2x$

B. $y = -2x + 6$ $y = 6 - 2x$

C. $y = 2x - 6$ $y = -6 + 2x$

Example 2:

Jason has saved $25,000. He loses his job and now needs to live off of his savings. He can live off of $1,500 per month. Write an equation that can be used to calculate how much money he will have in savings depending on how many months it has been since he lost his job.

$y = 25000 - 1500x$

$y = -1500x + 25000$

How much money would Jason have after 5 months?

$y = 25000 - 1500(5)$

$y = 25000 - 7500$

$y = 17500$

$1500 \cdot 5 = 7500$

$25000 - 7500 = 17500$

When would he run out of money?

$16\frac{2}{3}$ months

$1500 \cdot 16.$

25000

1500

$0 = 25000 - 1500x$

$-25000 \quad -25000$

$\frac{-25000}{-1500} = \frac{-1500x}{-1500}$

$= x$

When would he have $7 left?

$y = 25000 - 1500x$

$7 = 25000 - 1500x$

Example 3:

Karen is finishing a quilt that her grandmother started. When she received the quilt it was 5 square feet. Each day she adds 2 more squares to the quilt. Assuming she worked at a constant rate, write an equation that would calculate how much she has done depending on how many days she has been working.

$y = 5 + 2x$

Standard Form: $Ax + By = C$

Example 4:

Your parents gave you $50 to buy school supplies for your family. You arrived at the store and find the perfect notebook and some great fun-colored pens. You buy x notebooks for $5 each and y pens for $2 each, spending the entire $50.

$$\underbrace{5x}_{\text{Total for Notebooks}} + \underbrace{2y}_{\text{Total for Pens}} = \underbrace{50}_{\text{Total Spent}}$$

If you bought 6 notebooks, how many pens did you buy?

X $5(6)+2y=50$

$30+2y=50$

$-30 \quad -30$

$\frac{2y}{2}=\frac{20}{2}$

$y=10$

10 pens

Example 5:
The Ramsey family bought 4 sandwiches and 3 salads. They spent $24. Let x be the cost of a sandwich and y be the cost of a salad.

$4x+3y=24$

If each sandwich costs $3.75, how much did each salad cost? $3

x $4(3.75)+3y=24$
$15+3y=24$
$3y=9$
$y=3$

Example 6:
A 100-point test has x questions worth 2 points apiece and y questions worth 4 points apiece.

$2x+4y=100$

$y=mx+b$

When is an equation going to be in slope-intercept form?
- Starting value that you add or subtract to
- ONE thing that increases or decreases

When is it going to be in standard form?
- Total
- TWO different things
- No increase or decrease