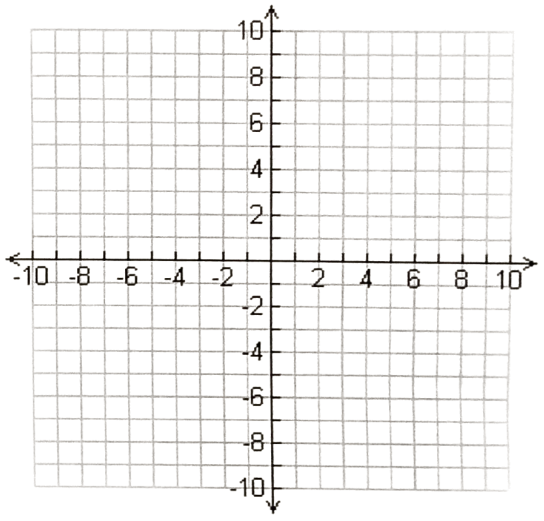
1) Use the equation below for the following problems:

$$y - 2 = 2(x + 3)$$



a. Graph using point-slope form

the point-slope form

b. Convert into slope-intercept form and graph in a different color.

(Solve for y)

c. Convert into standard form and use the x and y intercepts to graph in a different color.

$y = 2x + 8$

$-2x \quad -2x$

$-2x + y = 8$

2) A tank is filled with water. A drain is opened and begins draining water from the tank at a constant rate. The amount of water in the tank at various times is given in the table below.

* think about which is x & which is y.

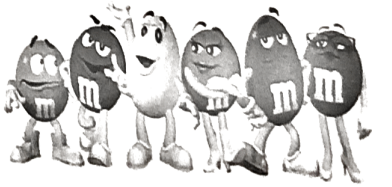
Number of gallons in the tank	Minutes since the drain has been opened
141	11
113	18
77	27

a. Mr. Lischwe makes the statement that the tank contained 190 gallons at the moment the drain was opened. Find a way to show Mr. Lischwe if he is correct or incorrect.

b. When the tank has 50 gallons of water remaining, the drain is set to automatically shut off. How long will it take the drain to shut off? Show how you decided.

3) Bill had a giant bag of Skittles, and Will had a giant bag of M&Ms. Both feeling generous, they started giving out candy. Bill gave out the same number of Skittles to each person, and Will gave out the same number of M&Ms to each person. After giving Skittles to 10 people, Bill had 220 Skittles left. After giving Skittles to 15 people, Bill had 180 Skittles left. Will gave out 12 M&Ms to each person and after giving M&Ms to 20 people, he had 174 M&Ms left.

a. Write an equation for Bill's amount of Skittles in point-slope form. Then change your equation to slope-intercept form.



b. Write an equation for Will's amount of M&Ms.

c. Whose bag started with more candy? How many more pieces did that bag have?

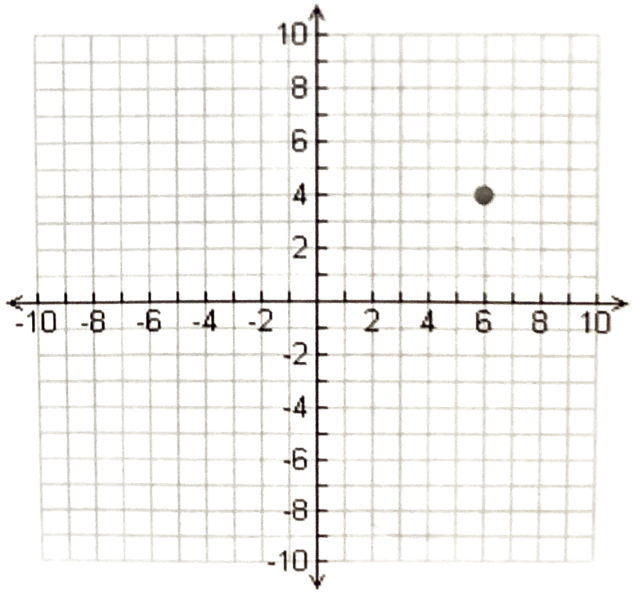
d. Who can give candy to more people before they run out? How many people can this person give candy to?

4)

a. Find two equations in slope-intercept form that go through the point (6,4)

b. Find two equations in point-slope form that go through the point (6,4).

c. Find one equation in standard form that goes through the point (6,4)



Linear Quiz 2 Challenge Problems

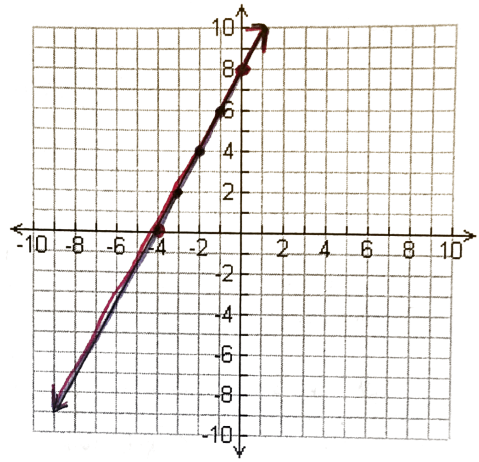
Name Key

Problem 1

a) Graph $y-2=2(x+3)$

point: $(-3, 2)$

slope: 2



b) $y-2=2(x+3)$

$y-2=2x+6$ slope: 2

$y=2x+8$ y-int: 8

c) $y-2=2(x+3)$

$y-2=2x+6$ → x-int: -4, y-int: 8

$-2x+y=8$

Problem 2

Number of gallons in the tank	Minutes since the drain has been opened
141	11
113	18
77	27

(y: Number of gallons in the tank; x: Minutes since the drain has been opened)

-28: 141 → 11; 7

-36: 113 → 18; 9

$\frac{-28}{7} = \frac{-36}{9} = -4$

a) No it starts at 185 gallons

$y-141=-4(x-11)$

$y-141=-4x+44$

$y=-4x+185$

$y-77=-4(x-27)$

$y-77=-4x+108$

$y=-4x+185$

b) $y=-4x+185$

$50=-4x+185$

$-135=-4x$

$33.75=x$

After $33\frac{3}{4}$ minutes

Problem 3

Skittles — Bill: (10, 220), (15, 180)

M-Ms — Will: 12 per person, (20, 174)

a) $\frac{220-180}{10-15} = \frac{-40}{5} = -8$

$y - 220 = -8(x - 10)$

$y - 220 = -8x + 80$

$y = -8x + 300$

b) $y = -12x + b$

$174 = -12(20) + b$

$174 = -240 + b$

$414 = b$

$y = -12x + 414$

c) Will started with more candy (414 vs. 300)

114 more pieces

d) Will

$0 = -12x + 414$

$12x = 414$

$x = 34.5$

give candy to 34 people

Bill

$0 = -8x + 300$

$37.5 = x$

give candy to 37 people

Problem 4

a) $y = x - 2$

$y = \frac{1}{2}x + 7$

b) $y - 4 = 2(x - 6)$ ⑤

$y - 4 = \frac{1}{3}(x - 6)$

c) $2x + 3y = 24$

$10x + 10y = 100$