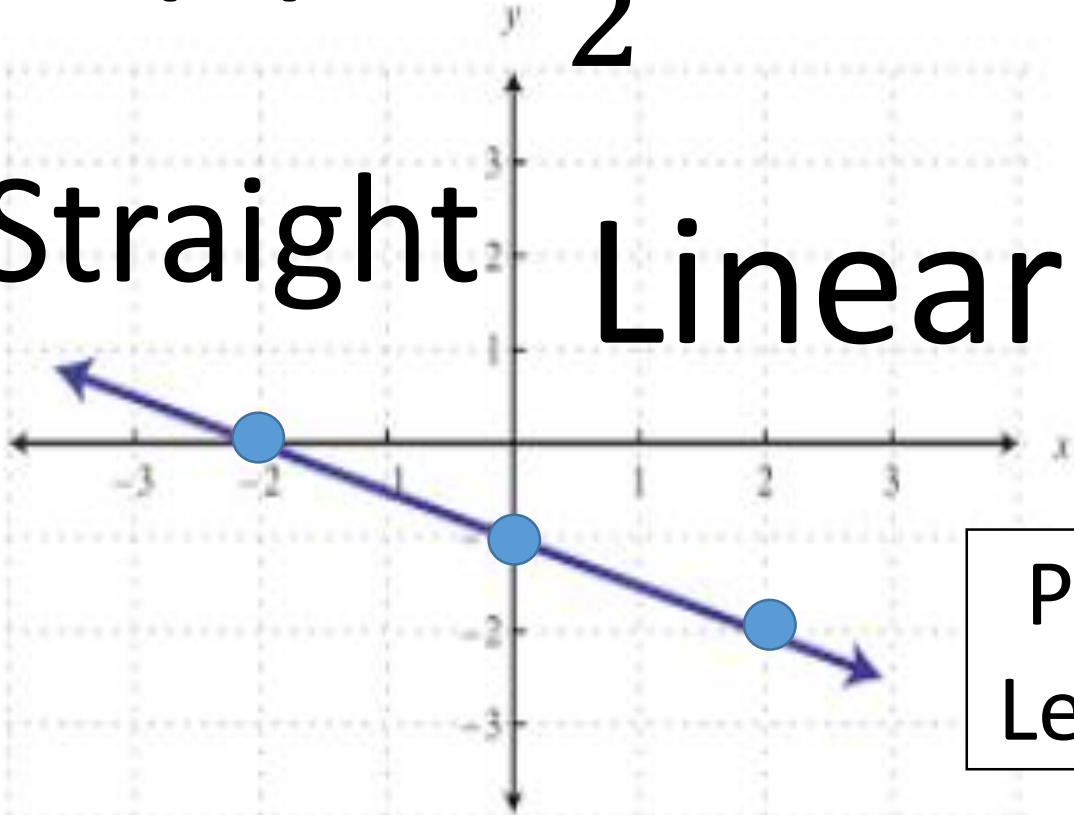# Activator

Write the equations for the graphs.
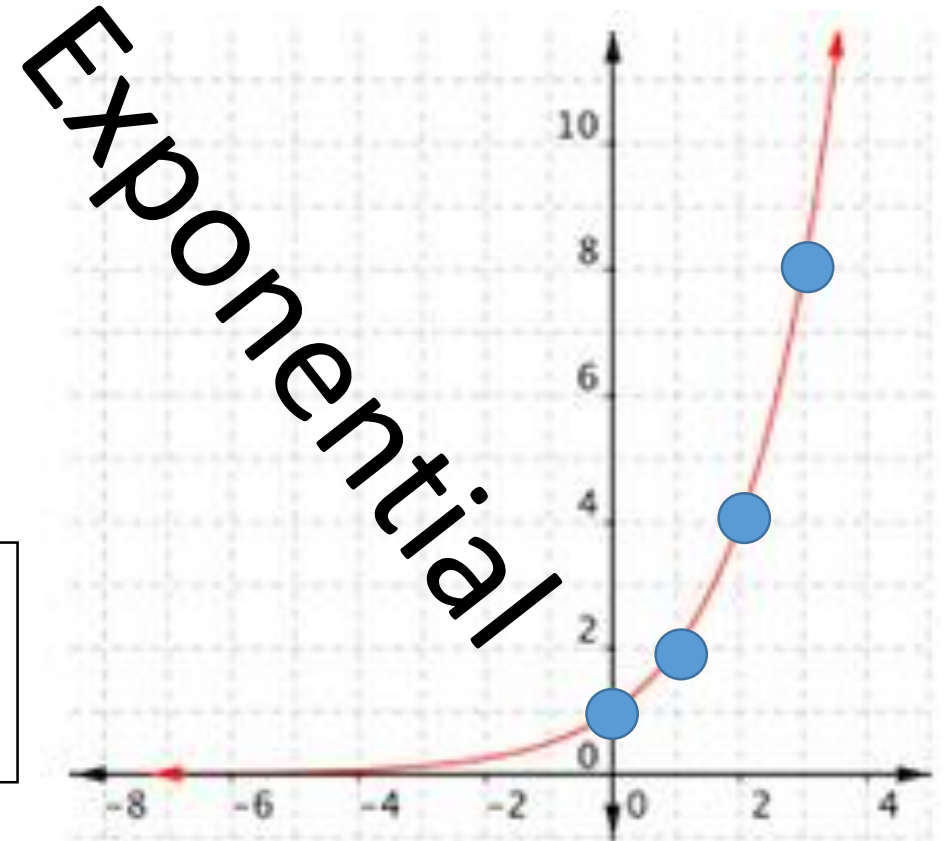
$$f(x) = \frac{-1}{2}x - 1$$

$$f(x) = 1(2^x)$$

Straight

Linear

Exponential

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Today's Objective

Students will be able to write equations from word problems.

Announcements

A Gold's gym membership costs $100 to sign-up and $10 dollars per month.

Is the situation linear? Yes

Why? Adds $10 per month

Explain C(0): The beginning cost

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x	C(x)
0	100
1	110
2	120
3	130

+10

+10

+10

Write an equation and function to model this situation.

Equation: y = mx + b

Function: C(x) = mx + b

M = $10 = the monthly payment

B = $100 = Beginning Sign-up Fee

C(x) = $10x + $100

x	C(x)
0	100
1	110
2	120
3	130

+10
+10
+10

Is the situation linear? Yes

You have discovered you have termites.
Termites reproduce at a rapid pace.
Some termite colonies can double
in size monthly. You currently have
about 100 termites in your house.

x	f(x)
0	100
1	200
2	400
3	800

(2)
(2)
(2)

Exponential Why?

Repeated Multiplication

Write an equation (function) to model this situation.

Equation: $y = b(c^x)$

Function: $t(x) = b(C)^x$

C = (2) = Doubles (Times 2)

B = 100 = Beginning Termites

$t(x) = 100(2^x)$

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x	t(x)	
0	100	
1	200	(2)
2	400	(2)
3	800	(2)

Group Work Questions

Directions: All groups, please do all of the questions. Use your notes from last class to help you. [Ask 2 people before you ask me.]

Last time, we did Lesson 6.6 Notes.

2nd Stop @ 9:03

3rd Stop @ 10:06

8th Stop @ 2:25

*One person from each group will present one question.

Work Period

Last weekend, Emma sold lemonade at a yard sale. Emma earned money selling c cups. Sales were strong, so she raised the price from 50 cents to 75 cents per cup. She *spent $9.96* on supplies each week. Write the function which represents her profit, P(c) for this weekend and this weekend. Let P = The profit.

Let c = The number of cups

Linear or Exponential? Linear

Why? No exponent, same price per cup.

P(c)= $0.50c - 9.96 last weekend

P(c)= $0.75c - 9.96 this weekend

Exit Ticket

Emma sold 80 cups of lemonade each weekend, how much money did she make selling lemonade each week?

$P(c) = \$0.50c - 9.96$

$P(80) = \$0.50(80) - 9.96$

$P(80) = \$40 - 9.96$

$P(80) = \$30.04$

Last weekend

$P(c) = \$0.75c - 9.96$

$P(80) = \$0.75(80) - 9.96$

$P(80) = \$60 - 9.96$

$P(80) = \$50.04$

This weekend

Do absent work or study guide when done.