AGS 1 Name: _____ Period: _____ Date: _____

Unit 2 Test Review

Write the generic form of each type of equation:

1. Slope-Intercept

$y = mx + b$

2. Point-Slope

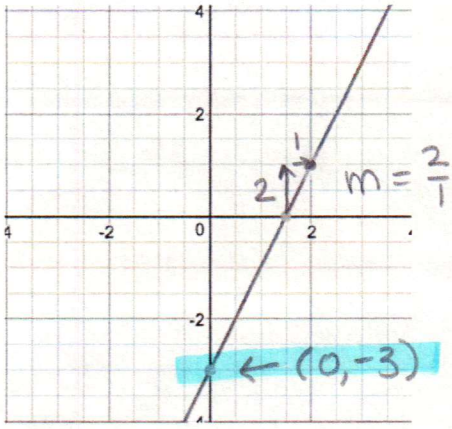
$y = m(x - x_1) + y_1$

3. Explicit Geometric

$y = a(b)^x$

Write an equation for each, then label the parts of the equation:

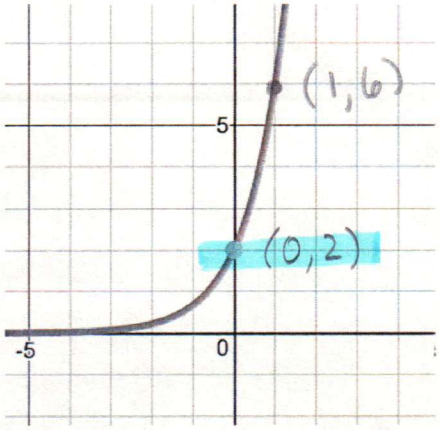
4.



$y = 2x - 3$

Slope, y-intercept

5.



$y = 2(3)^x$

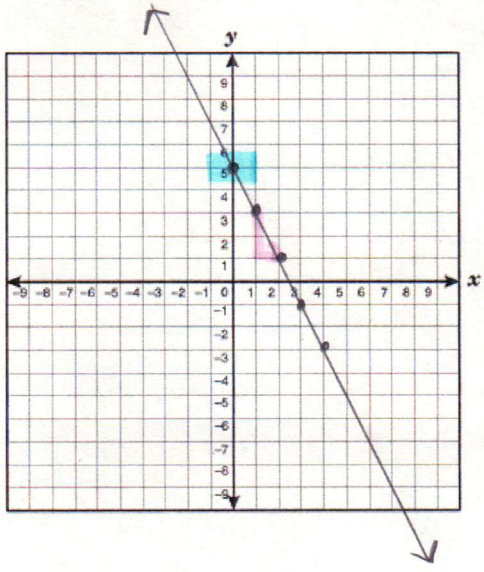
y-intercept, common ratio

6. Write an equation and graph

$m = -2, \quad b = 5$

Equation:

$y = -2x + 5$



Label each of these and as **linear or exponential**, if linear describe the slope, if exponential give the type of graph.

7. $f(x) = 4\left(\frac{1}{2}\right)^x$ exponential decay

How do you know? has an exponent
common ratio is between 0 and 1

8. $f(x) = 3x - 2$ linear positive

How do you know? it is in slope-intercept form
the value of m is positive

9. Max earns $40 for chopping wood. For every truck he loads, he gets an additional $8.

notes 2.6 →

Write an equation: $y = 8t + 40$ (t ← truck)

notes 2.1

Would your graph be discrete or continuous? Why?

discrete - he is being paid per truck

Would your graph be linear or exponential? Why?

linear, each truck adds $8 to his total

10. Your college savings account is currently $24,000. Each year it grows by 3%

Write an Equation: $y = 24000(1.03)^t$ ← years

100% + 3% = 103% or 1.03

Would your graph be discrete or continuous? Why?

Continuous, it is earning money all the time.

Would your graph be linear or exponential? Why?

exponential, the amount changes each year because it is a percent of the total.

Write an equation from the given information and graph.

11. A linear graph that goes through (-2, -3) and (8, 2).

notes 2.2 → $m = \frac{2-(-3)}{8-(-2)} = \frac{2+3}{8+2} = \frac{5}{10}$

notes 2.3

$y = \frac{1}{2}(x-8)+2$ point-slope

$y = \frac{1}{2}x - 4 + 2$

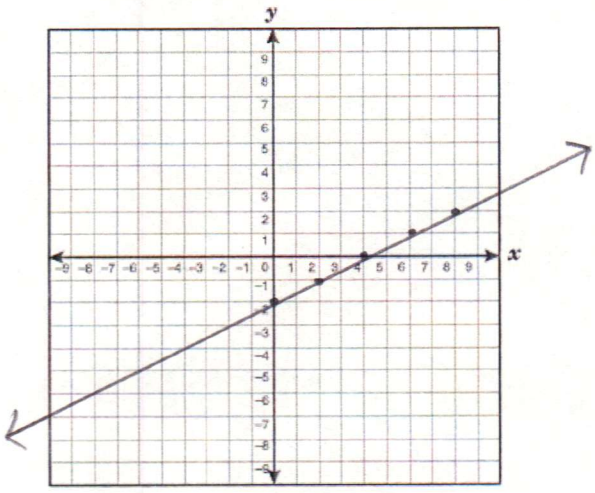
$y = \frac{1}{2}x - 2$ slope-intercept

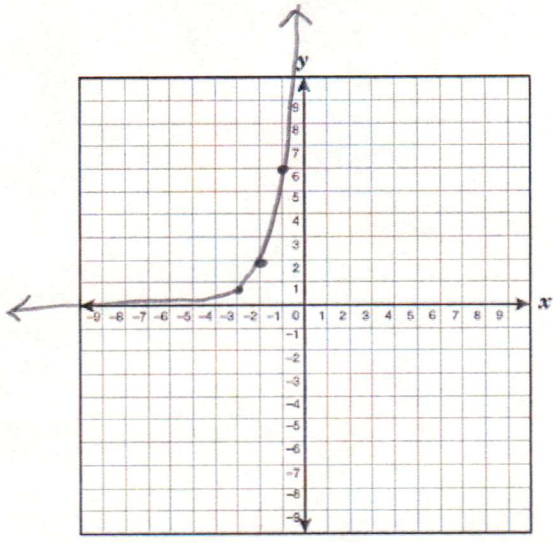
12.

x	f(x)
-2	2
-1	6
0	18
1	54
-3	$\frac{2}{3}$

(·3, ·3)

$y = 18(3)^x$ ← notes 2.4





13. What is the slope and the point found in the following equation?

$y = -1(x-6)+2$

slope: $m = -1$ point: $(6, 2)$

14. What is the slope and the point found in the following equation?

$y = \frac{2}{3}(x+4)-5$ → $(x-(-4))$

slope: $m = \frac{2}{3}$ point: $(-4, -5)$

notes 2.1

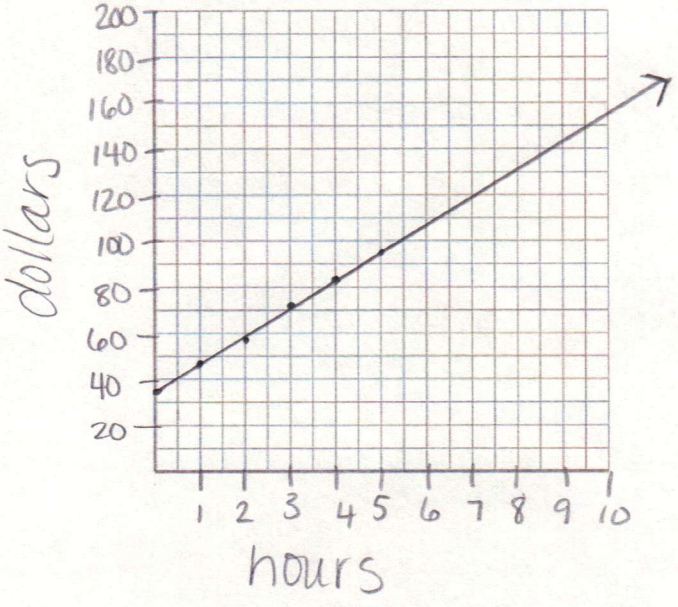
15. You have accepted a job at the Dairy Queen that pays $12.00 per hour. You got a starting bonus of $35 for agreeing to start the next day. Show how much money you will make based on hours worked.

Table:

hours	$
0	35
1	47
2	59
3	71
4	83
5	95
6	107

Equation: $y = 12h + 35$

Graph:



How much money will you have earned if you worked 50 hours?

$y = 12(50) + 35$

$= 600 + 35$

$= 635$

You will earn $635 if you work 50 hours.

16. Create a table and equation for each scenario, then graph both on the same graph. Answer the questions about the two scenarios.

notes ~~2.6~~ 2.5

Scenario A: Yum Factory is a new company that made $20,000 in 2015. They plan to increase their earnings by $10,000 per year.

Scenario B: Sweet Treats is also a new company and they made $10,000 in 2015. They plan to increase their earnings by 20% per year.

A - Yum

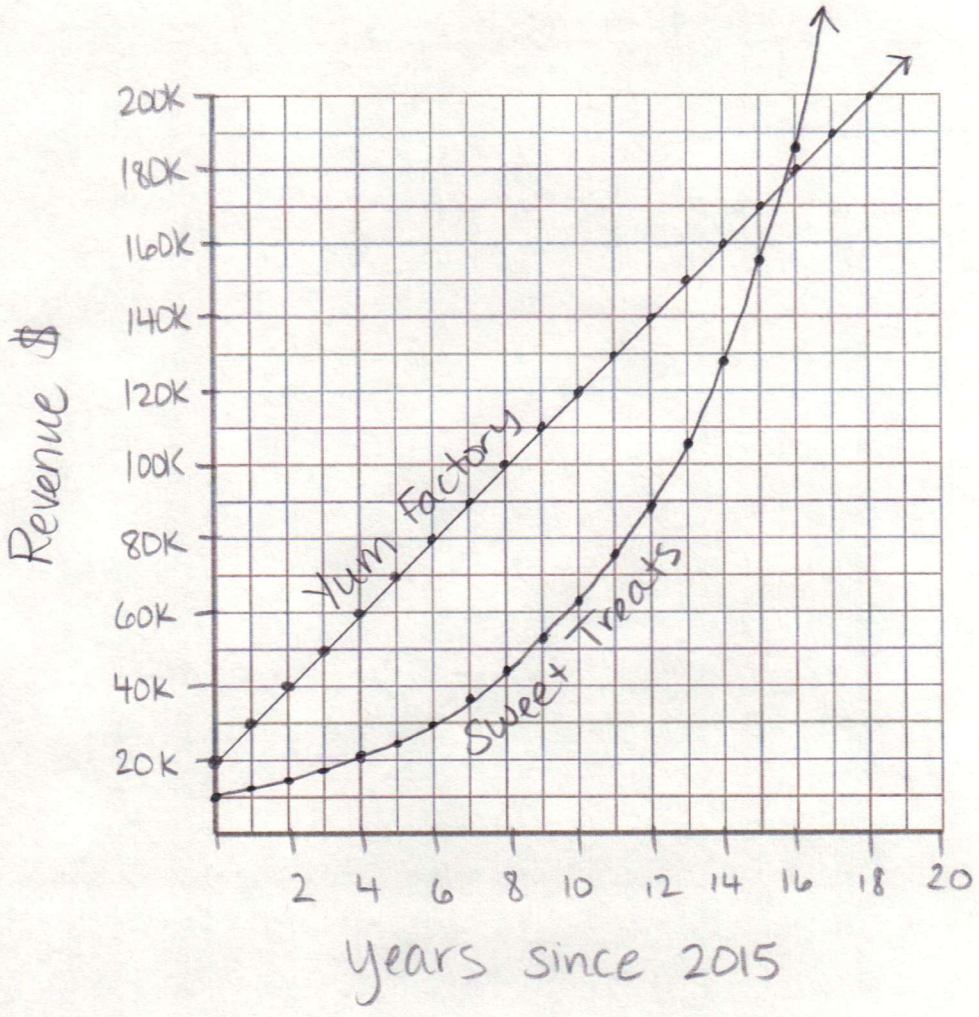
years	$
0	20,000
1	30,000
2	40,000
3	50,000
4	60,000
5	70,000

B - Sweet

years	$
0	10,000
1	12,000
2	14,400
3	17,280
4	20,736
5	24,883.20

A: $y = 10{,}000x + 20{,}000$

B: $y = 10{,}000(1.2)^x$



a. Which company had the highest starting value? Yum Factory

b. Which company has exponential growth? How do you know? What is the common ratio?

Sweet Treats, they are growing by a percentage

Common Ratio: 1.2

c. At approximately what year will the earnings be equal?

Just before 16 years or late in 2030

d. If you were going to invest for 5 years, which company would be the best choice? Why?

Yum factory, they are much more profitable in the early years as evidenced by the table and graph.

e. If you were going to invest for 20 years, which company would be the best choice?

Sweet Treats, by year 10 their yearly growth was greater and by year 16 their revenue was also greater and growing much faster.

f. Label the parts of each equation (starting value, constant rate, common ratio, number of years, earnings).

Yum Factory

$y = 10{,}000x + 20{,}000$

Constant rate or Slope

number of years

starting value

Sweet Treats

$y = 10{,}000(1.2)^x$

starting value

common ratio

number of years