

READY, SET, GO!

Name _____

Period _____

Date _____

READY

Topic: Comparing linear and exponential models.

Comparing different characteristics of each type of function by filling in the cells of each table as completely as possible.

	$y = 4 + 3x$	$y = 4(3^x)$																								
1. Type of growth	Linear	Exponential																								
2. What kind of sequence corresponds to each model?	Arithmetic	Geometric																								
3. Make a table of values	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>-1</td><td>1</td></tr> <tr><td>0</td><td>4</td></tr> <tr><td>1</td><td>7</td></tr> <tr><td>2</td><td>10</td></tr> <tr><td>3</td><td>13</td></tr> </tbody> </table>	x	y	-1	1	0	4	1	7	2	10	3	13	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>-1</td><td>$\frac{4}{3}$</td></tr> <tr><td>0</td><td>4</td></tr> <tr><td>1</td><td>12</td></tr> <tr><td>2</td><td>36</td></tr> <tr><td>3</td><td>108</td></tr> </tbody> </table>	x	y	-1	$\frac{4}{3}$	0	4	1	12	2	36	3	108
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4. Find the rate of change	+3	$\times 3$																								
5. Graph each equation. Compare the graphs. What is the same? What is different?																										
6. Find the y-intercept for each function.	4	4																								

7. Find the y-intercepts for the following equations

a) $y = 3x$ $(0, 0)$

b) $y = 3^x$ $(0, 1)$

8. Explain how you can find the y-intercept of a linear equation and how that is different from finding the y-intercept of a geometric equation.

*In a linear equation ($y = mx + b$), the y intercept is the b value.
 In an exponential equation, you can put 0 in for x.*

SET

Topic: Efficiency with different forms of linear and exponential functions.

For each exercise or problem below use the given information to determine which of the forms would be the most efficient to use for what is needed. (See task 2.6, Linear: slope-intercept, point-slope form, recursive, Exponential: explicit and recursive forms)

9. Jasmine has been working to save money and wants to have an equation to model the amount of money in her bank account. She has been depositing \$175 a month consistently, she doesn't remember how much money she deposited initially, however on her last statement she saw that her account has been open for 10 months and currently has \$2475 in it. Create an equation for Jasmine.

Which equation form do you chose?

Point-Slope

Write the equation.

$$y = 175(x - 10) + 2475$$

10.

The table below shows the number of rectangles created every time there is a fold made through the center of a paper. Use this table for each question.

Folds	Rectangles
1	2
2	4
3	8
4	16

A. Find the number of rectangles created with 5 folds.

Which equation form do you chose?

Recursive

Write the equation.

$$f(n) = f(n-1) \cdot 2, f(1) = 2$$

B. Find the number of rectangles created with 14 folds.

Which equation form do you chose?

Explicit

Write the equation.

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

11. Using a new app that I just downloaded I want to cut back on my calorie intake so that I can lose weight. I currently weigh 90 kilograms, my plan is to lose 1.2 kilograms a week until I reach my goal. How can I make an equation to model my weight loss for the next several weeks.

Which equation form do you chose?

Slope - Intercept

Write the equation.

$$y = -1.2x + 90$$

12. Since Scott started doing his work out plan Janet has been inspired to set her self a goal to do more exercise and walk a little more each day. She has decided to walk 10 meters more every day. On the day 20 she walked 800 meters. How many meters will she walk on day 21? On day 60?

Which equation form do you chose?

Point - Slope

Write the equation.

$$y = 10(x - 20) + 800$$

For each equation provided state what information you see in the equation that will help you graph it, then graph it. Also, use the equation to fill in any four coordinates on the table.

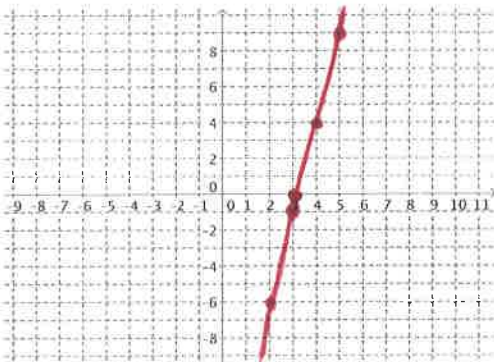
13. $y = \left(\frac{1}{2}\right)^n 8$



What do you know from the equation that helps you to graph the function?

The y-intercept is 8 and each number after is half of the one before. (Exponential)

14. $y = 5(x - 2) - 6$



What do you know from the equation that helps you to graph the function?

The graph is a line that has the point (2, -6) and has a slope of 5.

GO

Topic: Solving one-step equations with justification.

Recall the two properties that help us solve equations.

The Additive property of equality states:

You can add any number to both sides of an equation and the equation will still be true.

The Multiplicative **property of equality** states:

You can multiply any number to both sides of an equation and the equation will still be true.

Solve each equation. Justify your answer by identifying the property(s) you used to get it.

Example 1: $x - 13 = 7$		<u>Justification</u>	
$+13 \quad +13$ $x + 0 = 20$		additive property of equality addition	
$x = 20$		additive identity (You added 0 and got x.)	
Example 2: $5x = 35$		<u>Justification</u>	
$\frac{5}{5}x = \frac{35}{5}$		multiplicative property of equality (multiplied by $\frac{1}{5}$)	
$1x = 7$		multiplicative identity (A number multiplied by its reciprocal = 1)	
15.	$3x = 15$ $\frac{3}{3} \quad \frac{3}{3}$ $x = 5$	<u>Justification</u> Division Property of equality	16.
			$x - 10 = 2$ $+10 \quad +10$ <u>Addition Property of Equality</u>
17.	$-16 = x + 11$ $-11 \quad -11$ $x = -27$	<u>Justification</u> Subtraction Property of Equality	18.
			$6 + x = 10$ $-6 \quad -6$ $x = 4$ <u>Subtraction Property of equality</u>
19.	$6x = 18$ $\frac{6}{6} \quad \frac{6}{6}$ $x = 3$	<u>Justification</u> Division Property of Equality	20.
			$-3x = 2$ $\frac{-3}{-3} \quad \frac{-3}{-3}$ <u>Division Property of Equality</u>

