

Lesson 8 How Does It Grow?

A Practice Understanding Task



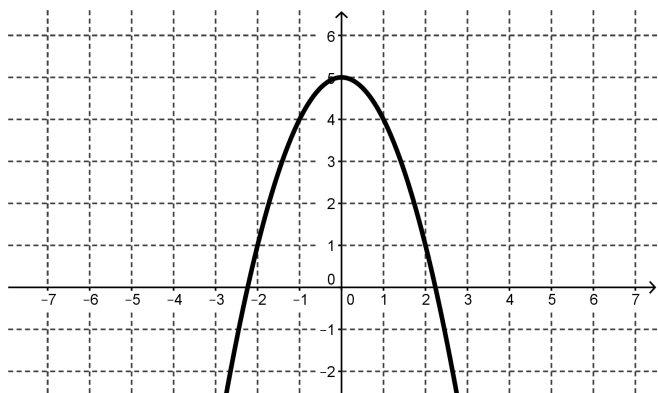
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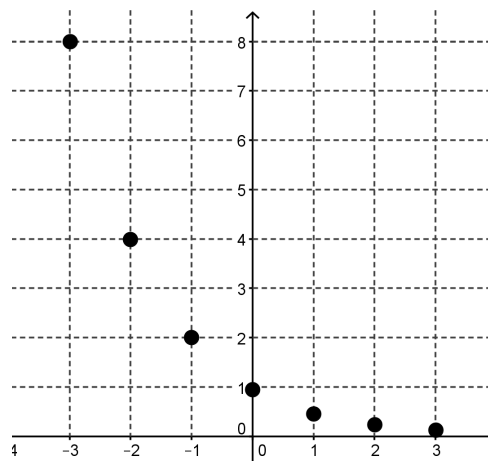
For each relation given:

- Identify whether or not the relation is a function;
 - Determine if the function is linear, exponential, quadratic or neither;
 - Describe the type of growth
 - Create one more representation for the relation.
- A plumber charges a base fee of \$55 for a service call plus \$35 per hour for each hour worked during the service call. The relationship between the total price of the service call and the number of hours worked.

2.

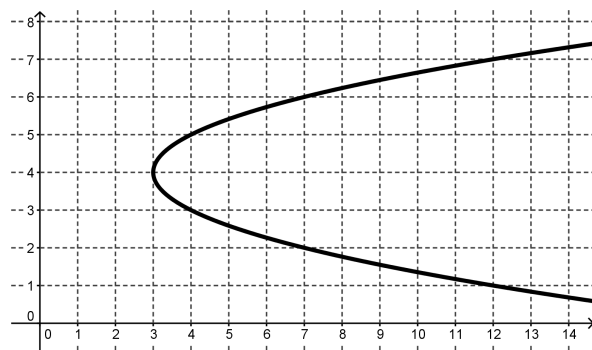


3.



4. $y = \frac{1}{3}(x - 2)^2 + 4$

5.

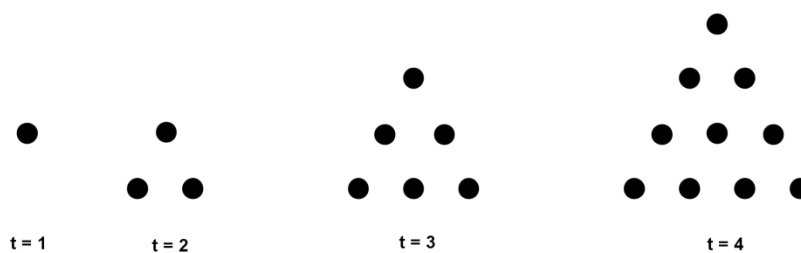


6. $y = \frac{1}{3}(x - 2) + 4$

7. The relationship between the speed of a car and the distance it takes to stop when traveling at that speed.

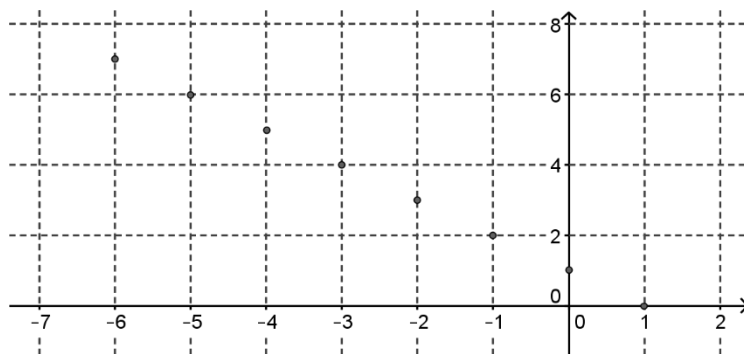
Speed (mph)	Stopping Distance (ft)
10	12.5
20	50
30	112.5
40	200
50	312.5
60	450
70	612.5

8. The relationship between the number of dots in the figure and the time, t .



9. The rate at which caffeine is eliminated from the bloodstream of an adult is about 15% per hour. The relationship between the amount of caffeine in the bloodstream and the number of hours from the time the adult drinks the caffeinated beverage if the initial amount of caffeine in the bloodstream is 500 mg.

10.



11. $y = (4x + 3)(x - 6)$

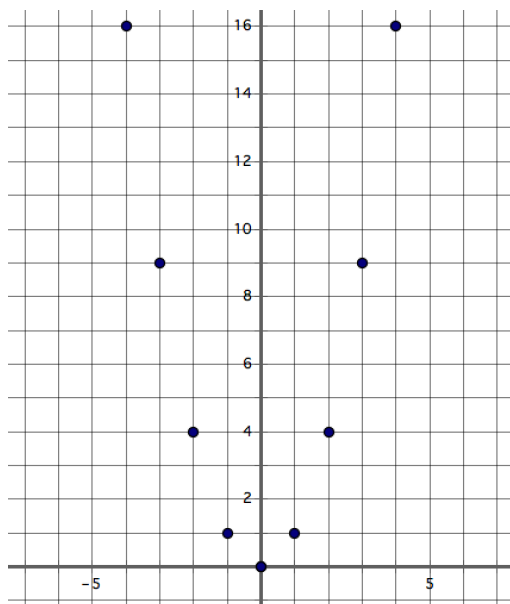
12. Mary Contrary wants to build a rectangular flower garden surrounded by a walkway 4 meters wide. The flower garden will be 6 meters longer than it is wide.

a. The relationship between the width of the garden and the perimeter of the walkway.

b. The relationship between the width of the garden and area of the walkway.

13. $y = \left(\frac{1}{3}\right)^{x-2} + 4$

14.



READY, SET, GO!

Name _____

Period _____

Date _____

READY

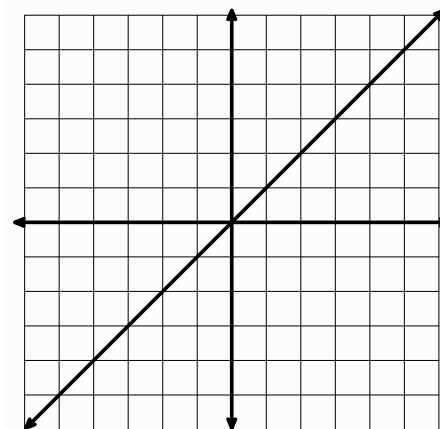
Topic: Transforming lines

1. Graph the following linear equations on the grid. The equation $y = x$ has been graphed for you. For each new equation explain what the number 3 does to the graph of $y = x$. Pay attention to the y-intercept, the x-intercept, and the slope. Identify what changes in the graph and what stays the same.

a. $y = x + 3$

b. $y = x - 3$

c. $y = 3x$

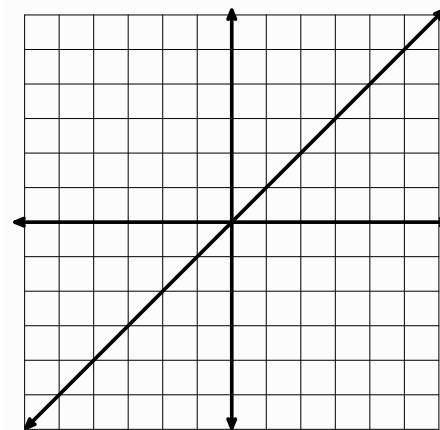


2. The graph of $y = x$ is given. (See figure 2.) For each equation predict what you think the number -2 will do to the graph. Then graph the equation.

a. $y = x + (-2)$
 Prediction: _____

b. $y = x - (-2)$
 Prediction: _____

c. $y = -2x$
 Prediction: _____



SET

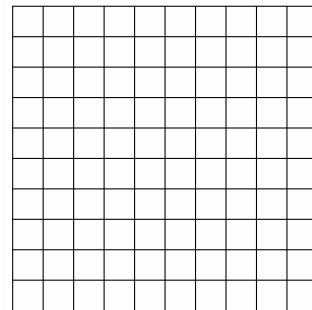
Topic: Distinguish between linear, exponential and quadratic functions

For each relation given:

- Identify whether or not the relation is a function. (If it's not a function, skip b - d.)
- Determine if the function is Linear, Exponential, Quadratic or Neither.
- Describe the type of growth.
- Express the relation in the indicated form.

3. I had 81 freckles on my nose before I began using vanishing cream. After the first week I had 27, the next week 9, then 3 . . .

- Function?
- Linear, Exponential, Quadratic or Neither
- How does it grow?
- Make a graph. Label your axes and the scale Show all 4 points.

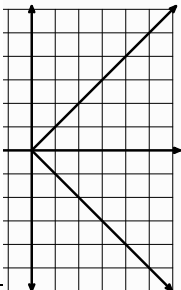


4.

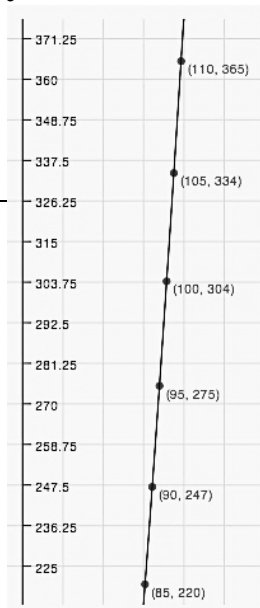
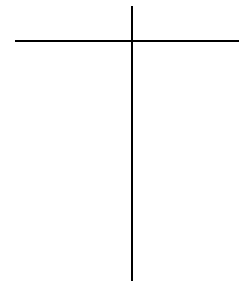
x	y
0	81
1	$80\frac{2}{3}$
2	$80\frac{1}{3}$
3	80
4	$79\frac{2}{3}$

- Function?
- Linear, Exponential, Quadratic or Neither
- How does it grow?
- Write the explicit equation.

5.



- Function?
- Linear, Exponential, Quadratic or Neither
- How does it grow?
- Create a table



6. Speed in mph of a baseball vs. distance in ft.

- Function?
- Linear, Exponential, Quadratic or Neither
- How does it grow?
- Predict the distance the baseball flies, if it leaves the bat at a speed of 115 mph.

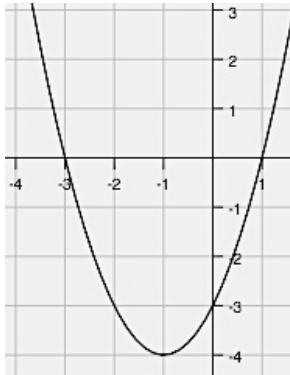
GO

Topic: Matching function representations

Match the function on the left with the equivalent function on the right.

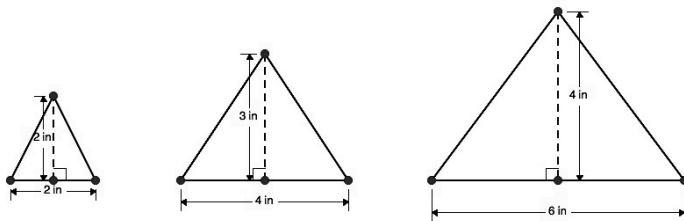
___ 7. $f(x) = -2x + 5$

___ 8.



___ 9. I put \$7000 in a savings account that pays 3% interest compounded annually. I plan to leave it in the bank for 20 years. The amount I will have then.

___ 10. The area of the triangles below.



___ 11. $f(0) = 5; f(n) = 2 * f(n-1)$

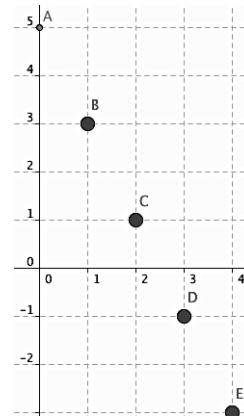
___ 12. $f(0) = 5; f(n) = f(n-1) - 2$

13.

x	-7.75	-1/4	1/2	11.6
f(x)	7.75	1/4	-1/2	-11.6

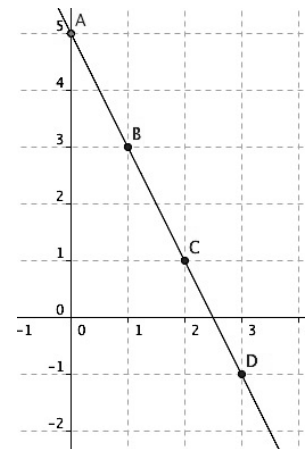
a. $f(x) = 5(2)^x$

b.



c. $f(1) = 2; f(n+1) = f(n) + 2n + 2$

d.



e. $y + x = 0$

f. $y = (x - 1)(x + 3)$

g. $A = 7000(1.03)^{20}$