

Today we will...

-finish up 1.6

-go over any 1.6 HW questions

-take a quiz

-work on 1.7

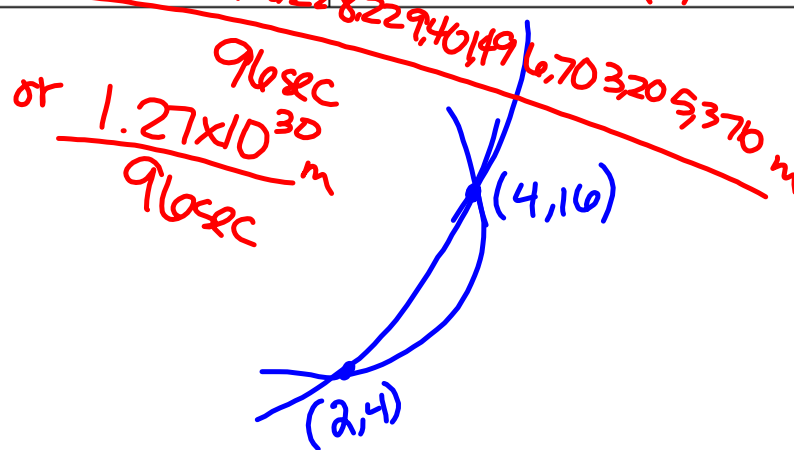
-check 1.5 HW

4. If the race course were 15 meters long who wins, the tortoise or the hare? Why?

The hare would because he's ahead between 4 & 16 meters (2 & 4 seconds).

5. Use the properties  $d = 2^t$  and  $d = t^2$  to explain the speeds of the tortoise and the hare in the following time intervals:

Interval	Tortoise $d = 2^t$	Hare $d = t^2$
[0, 2)	$d(0) = 2^0 = 1\text{m}$ Speed $\frac{3\text{m}}{2\text{s}} = 1.5\text{m/s}$ $d(2) = 2^2 = 4\text{m}$	$d(0) = 0^2 = 0\text{m}$ Speed: $\frac{4\text{m}}{2\text{sec}} = 2\text{m/s}$ $d(2) = 2^2 = 4\text{m}$ *faster*
[2, 4)	$d(2) = 2^2 = 4$ Speed $\frac{12\text{m}}{2\text{s}} = 6\text{m/s}$ $d(4) = 2^4 = 16$	$d(2) = 2^2 = 4$ $d(4) = 4^2 = 16$ 6m/s *same speed*
[4, ∞)	$d(4) = 2^4 = 16$ *faster* $d(100) = 2^{100} = 1.267656160022 \times 10^{30}$ or $\frac{1.27 \times 10^{30}\text{m}}{9\text{sec}}$	$d(4) = 4^2 = 16$ speed: $\frac{9984\text{m}}{9\text{sec}} = 1109\text{m/s}$ $d(100) = 100^2 = 10000$



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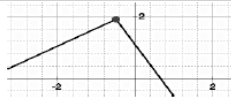
**Ready**  
 Topic: Recognizing functions

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**Identify which of the following representations are functions. If it is NOT a function state how you would fix it so it was.**

1.  $D = \{(4, -1) (3, -6) (2, -1) (1, 2) (0, 4) (2, 5)\}$  *no*

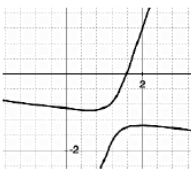
2. The number of calories you have burned since midnight at any time during the day.

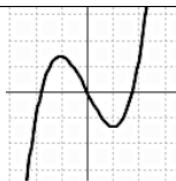
3. 

4. 

x	-12	-8	-6	-4
f(x)	25	25	25	25

*yes*

5. 

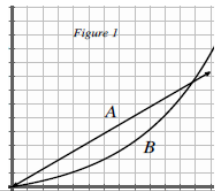
6. 

**Set**  
 Topic: Comparing rates of change in linear, quadratic, and exponential functions

The graph at the right shows a time vs. distance graph of two cars traveling in the same direction along the freeway.

7. Which car has the cruise control on? How do you know?

8. Which car is accelerating? How do you know?

*Figure 1*  


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13a. Domain \_\_\_\_\_  
b. Range \_\_\_\_\_

14a. Domain \_\_\_\_\_  
b. Range \_\_\_\_\_

15a. Domain \_\_\_\_\_  
b. Range \_\_\_\_\_

(not included)  
[included]

16a. Domain \_\_\_\_\_  
b. Range \_\_\_\_\_

[-4, 2] or [-2, 2] or

17a. Domain \_\_\_\_\_  
b. Range \_\_\_\_\_

-4 ≤ x ≤ 2  
-2 ≤ y ≤ 2

18a. Domain \_\_\_\_\_  
b. Range \_\_\_\_\_

[2, 2, 6) or 2.2 ≤ y < 6

19a. Domain \_\_\_\_\_  
b. Range \_\_\_\_\_

20a. Domain \_\_\_\_\_  
b. Range \_\_\_\_\_

## QUIZ #3 - Functions

Identify the following as linear, exponential, or quadratic.

1)  $f(x) = x^2 + 8$

2)  $g(x) = 4^x$

3)  $h(x) = 7x - 4$

# 1.7 How Does It Grow?

A Practice Understanding Task

1.7 HW is  
pgs 33-36  
SKIP pgs 37-39



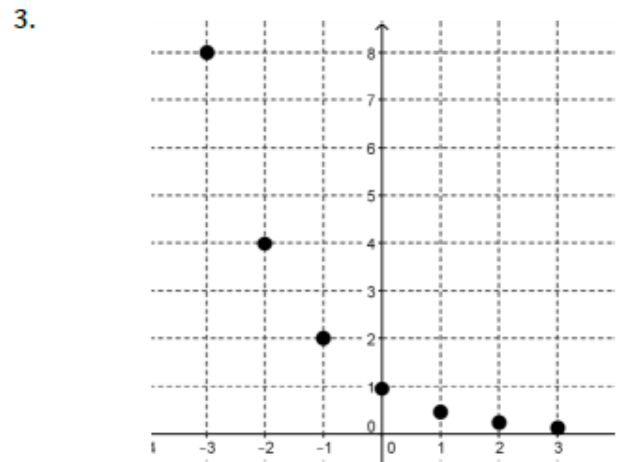
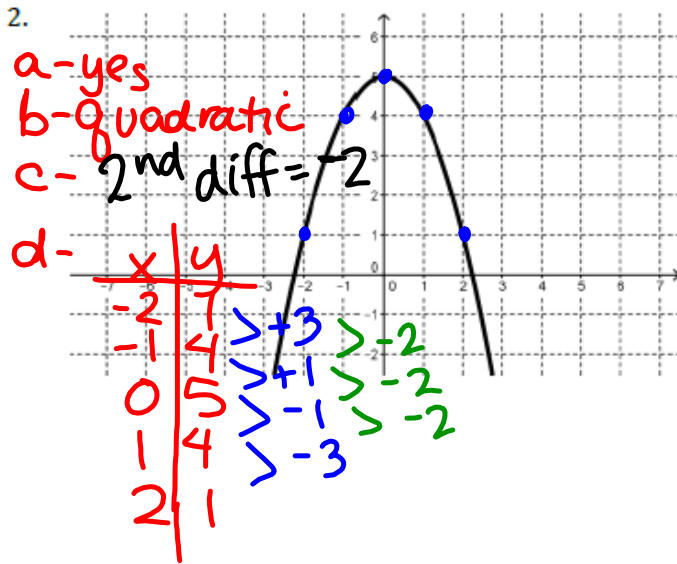
For each relation given:

- a. Identify whether or not the relation is a function;
- b. Determine if the function is linear, exponential, quadratic or neither;
- c. Describe the type of growth
- d. Create one more representation for the relation.

+/-    •/÷  
2<sup>nd</sup> diff same  
1<sup>st</sup> diff Linear

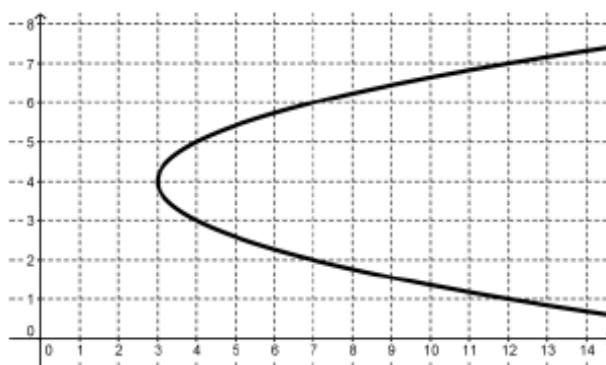
equations, tables, graphs, geometric, story

1. 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.



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

5.

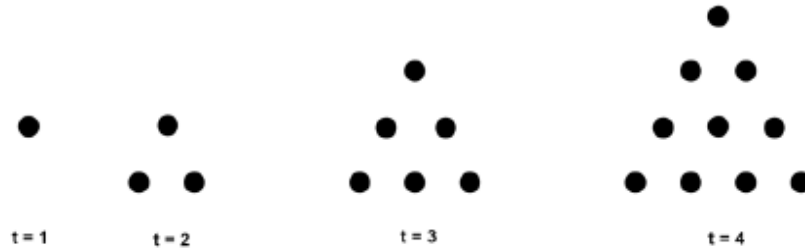


6.  $y = \frac{1}{3}(x - 2) + 4$

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

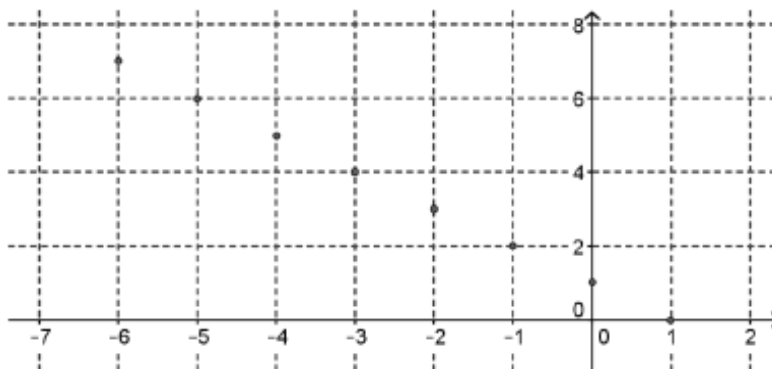
Speed (mph)	Stopping Distance (ft)
10	12.5
20	36.0
30	69.5
40	114.0
50	169.5
60	249.0
70	325.5

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.

10.





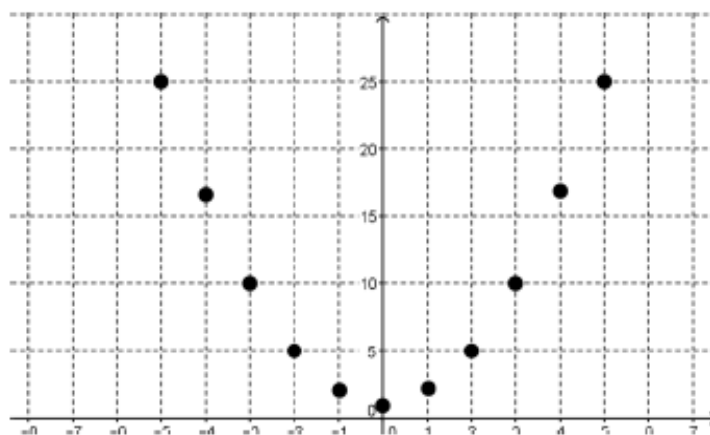
11.  $y = (4x + 3)(x - 6)$

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.

- The relationship between the width of the garden and the perimeter of the walkway.
- The relationship between the width of the garden and area of the walkway.

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

14.



# Homework/Classwork

Finish 1.7