

ALGEBRA RH

HW

1. Determine whether each function is linear, exponential or quadratic

1. $y = 6^x + 3$ exponential
 2. $y = 7x^2 + 5x - 2$ quadratic
 3. $9x + 3 = y$ linear
 4. $4^{2x} = 8+y$ exponential

5. $2x + 3y = 10$ linear
 6. $(x-2)(x+4) = 10$ quadratic
 7. $y = 3^x + 4$ exponential

2. Place each function into the correct box

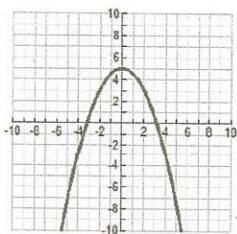
$$y = 2x(x+3) - 5 \quad y = 5x + 1 \quad y = x^2 + 9 \quad y = 5^{2x} \quad y = \frac{x}{2}$$

$$2x + 3y = 6 \quad 4^x + y = 13 \quad x^2 + 4y = 7 \quad y = 2(3)^{x-1}$$

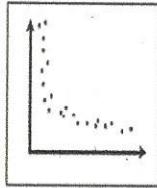
Linear	Exponential	Quadratic
$y = 5x + 1$ $y = \frac{x}{2}$ $2x + 3y = 6$	$y = 5^{2x}$ $4^x + y = 13$ $2(3)^{x-1} = y$	$y = 2x(x+3) - 5$ $y = x^2 + 9$ $x^2 + 4y = 7$

3. Identify from each graph whether it is linear, exponential or quadratic

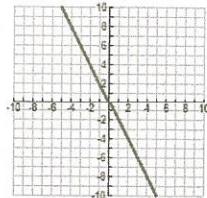
A.

quadratic

B.

exponential

C.

linear

4. Based on each table, determine whether the function is linear, exponential or quadratic. Justify using differences or ratios.

A.

x	y
1	5
2	9
3	13
4	17
5	21

linear

B.

x	y
1	0
2	-1
3	0
4	3
5	8

quadratic

C.

x	y
1	3
2	9
3	27
4	81
5	243

exponential

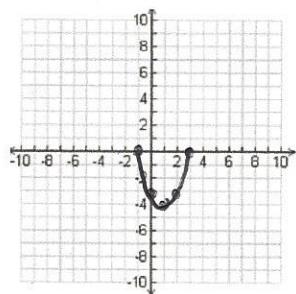
D.

x	y
-4	19
-3	12
-2	7
-1	4
0	3

quadratic

5. Plot each set of points and determine if it is linear, exponential or quadratic.

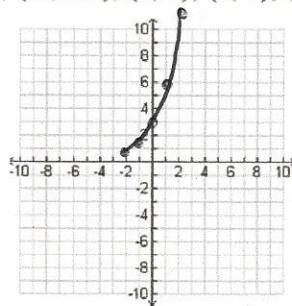
A. $(-1, 0), (0, -3), (1, -4), (2, -3), (3, 0)$



6.

quadratic

B. $(-2, .75), (-1, 1.5), (0, 3), (1, 6), (2, 12)$



exponential

Consider the three scenarios given. Match each with the corresponding function, graph, and table.

a. Juanita is driving home from her vacation spot at a constant rate. Which function, graph, and table represent her distance from home as a function of the number of hours she has traveled? Explain your reasoning. Common difference of -50

b. A mechanic drops a wrench from a flying helicopter. Which function, graph, and table represent the height of the wrench above the ground as a function of the time since it was dropped? Explain your reasoning. gravity curves a path of an object going down

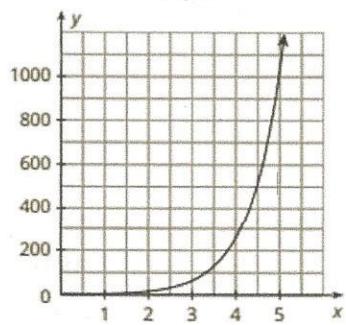
c. Scientists watch as a single cell divides into 4 cells over the course of an hour. During the next hour, each of the 4 new cells divides into 4 cells and the process continues. Which function, graph, and table represent the total number of cells as a function of time? Explain your reasoning.

$$f(x) = -16x^2 + 1900$$

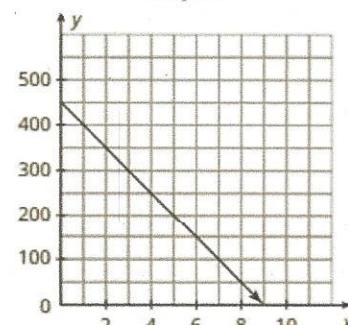
$$g(x) = 4^x$$

$$h(x) = -50x + 450$$

Graph 1



Graph 2



Graph 3

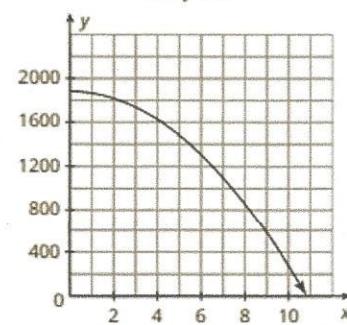


Table 1

x	y
0	1
1	4
2	16
3	64
4	256

Table 2

x	y
0	1900
2	1836
4	1644
6	1324
8	876

Table 3

x	y
0	450
2	350
4	250
6	150
8	50

Situation a: $h(x) = -50x + 450 \rightarrow$ graph 2 \rightarrow table 3

Situation b: $f(x) = -16x^2 + 1900 \rightarrow$ graph 3 \rightarrow table 2

Situation c: $g(x) = 4^x \rightarrow$ graph 1 \rightarrow table 1

second
common
difference

quadrupling the
amount of cells
each time
common ratio
is 4