

1. We have looked at (3) types of equations in detail this year. Can you list the (3) types?

- a. linear
- b. quadratic
- c. exponential

#2-4, Use equations A-C listed below to answer

A. $y = 3x^2 + 6x$

B. $y = 4(1.5)^x$

C. $y = -3x + 10$

2. Use equation A to do these things:

a. Identify the shape of the graph **parabola** b. Identify the values for a, b and c.

c. Find the vertex of graph

$\frac{-b}{2a} = \frac{-6}{2(3)} = (-1, -3)$

$a = 3, b = 6, c = 0$

3. Use equation B to do these things:

a. What shape is graph? **steep curve**

b. Determine whether growth or decay. **growth**

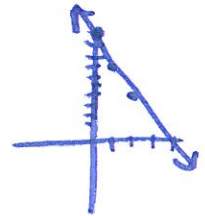
c. What is the starting value? **4**

d. What is the percent of increase? **150%**

4. Use equation C to do these things:

a. Identify the shape of graph **line**

b. Make a quick sketch of the graph.



#5-8, Given data, determine the type of equation that would fit it best.

5.

x	y
9	2
3	-2
-3	-6
-9	-10

linear

6.

x	y
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9

Quadratic

7.

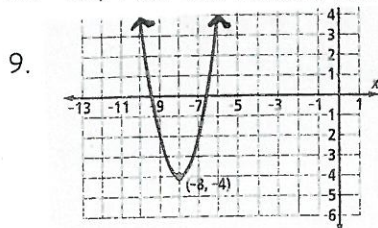
0	0
1	1
2	4
3	9
4	16
5	25

Quad.

8.

x	f(x)
0	5.00
0.2	6.96
0.4	7.64
0.6	7.04
0.8	5.16
1.0	2.00

#9-10, Find the domain and range.

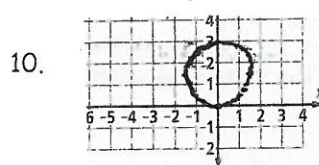


Domain:

$x = \mathbb{R}$

Range:

$y \geq -4$



Domain:

$-1.5 \leq x \leq 1.5$

Range:

$0 \leq y \leq 3$

#11-12, Make a scatter plot of data on calculator, then answer the questions.

Bounce	Rebound Height (m)
0	0.912
1	0.759
2	0.603
3	0.496
4	0.411
5	0.328
6	0.271

11.

exponential

a. Find the best-fit equation for the data.

$$y = .92(.82)^x$$

b. What is the correlation value?

$$r = -.9997$$

b. What first led you to choose this type of equation?

graph / r-value

12.

Oil Changes Per Year	3	5	2	3	1	4	6	4	3	2	0	10	7
Cost of Repairs (\$)	300	300	500	400	700	400	100	250	450	650	600	0	150

linear

a. Find the best-fit equation for the data.

$$y = 73.07x + 650.27$$

b. What is the correlation value?

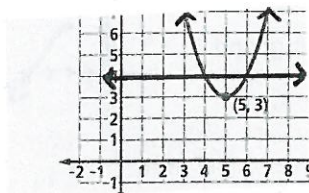
$$r = .91$$

b. What first led you to choose this type of equation?

graph / only model that worked

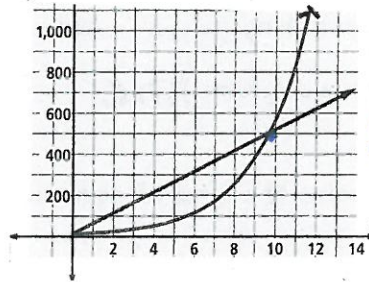
#13-14, Find the solution(s) for each system.

13.



(4, 4)
(6, 4)

14.



(0, 0)
(9.5, 500)

#15-17, Determine whether the sequence is arithmetic or geometric

15. 40, 43, 46, 49, 52, ...

Arith +3

16. 25, 12.5, 6.25, 3.125, ...

Geo $\cdot \frac{1}{2}$

17. 6.8, 7.1, 7.4, 7.7, ...

Arith +.3

#18-19, Find the next two terms in the sequence.

18.

$$a_n = -3(a_{n-1})$$

$$a_1 = 2$$

$$a_2 = -6 \quad a_3 = 18$$

19.

$$a_n = a_{(n-1)} - 5$$

$$a_1 = 73$$

$$a_2 = 68 \quad a_3 = 63$$

#20-23, Decide which of the situations the function with the given equation describes.

a. $f(x) = -4x + 18$

b. $g(x) = .4(5)^x$

c. $h(x) = 5(0.4)^x$

d. $j(x) = \frac{2}{3}x - 7$

20. constant increase

d

22. exponential decay

c

21. exponential growth

b

23. constant decrease

a