

Day 2: Linear, Quadratic, and Exponential . . . Oh My!

Date _____

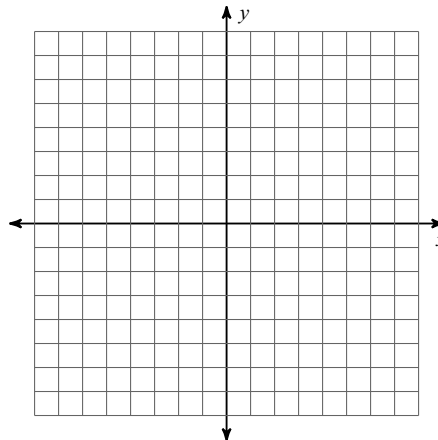
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1) There are ways to decide which function family: Linear, Quadratic or Exponential, a situation belongs to based on the representation you are given.

Linear

2) Equation:

3) Graph:



4) Description: _____

5) Table:

x and y change at a _____.

Example:

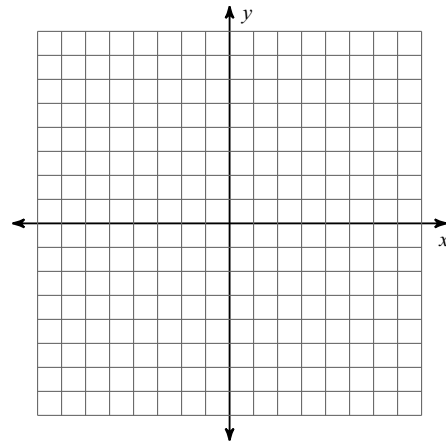
x : -2 -1 0 1 2

y : -4 -1 2 5 8

Quadratic

6) Equation:

7) Graph:



8) Description: _____

9) Table:

x changes at a _____, and the
_____ of y is constant.

Example:

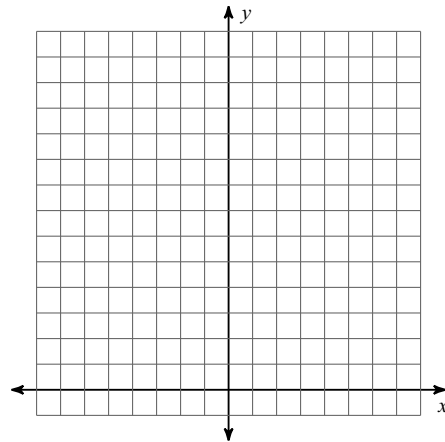
x : -2 -1 0 1 2

y : 7 4 3 4 7

Exponential

10) Equation:

11) Graph:



12) Description: _____

13) Table:

x changes at a _____, and the change in y is
by a _____.

Example:

x : -2 -1 0 1 2

y : $\frac{1}{9}$ $\frac{1}{3}$ 1 3 9

EQUATIONS

Identify the function as Linear, Quadratic, Exponential, or Other given the equation. Explain WHY.

14) $y = 2 \cdot 0.75^{x+4}$

15) $y = 2x + 5$

16) $y = 3(x - 2)^2 - 1$

17) $y = |x - 3| + 6$

18) $3x + 2y = 5x - 7$

19) $y = \frac{1}{2}(x - 3)(x + 1)$

20) $y = \frac{x - 2}{x + 1}$

21) $y = 5 \cdot 2^x$

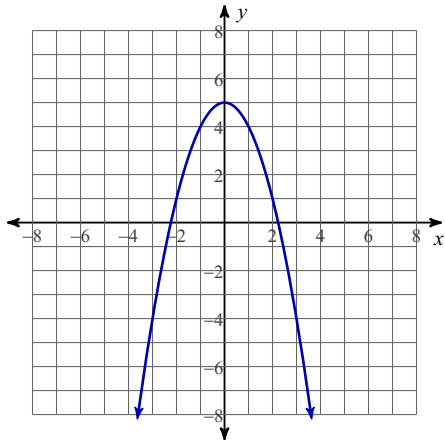
22) $y = 2x^2 + 6x - 8$

23) $y = x^3 - 27$

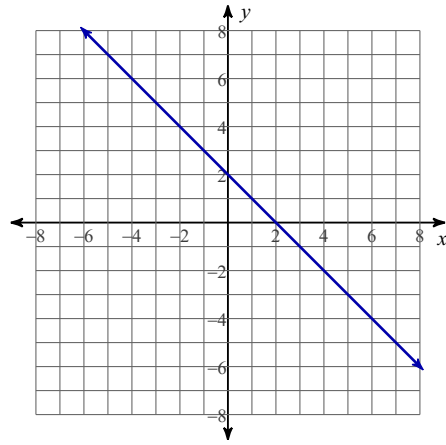
GRAPHS

Identify the function as Linear, Quadratic, Exponential, or Other given the graph. Explain WHY.

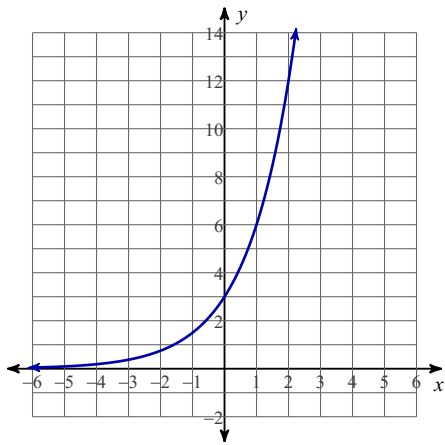
24)



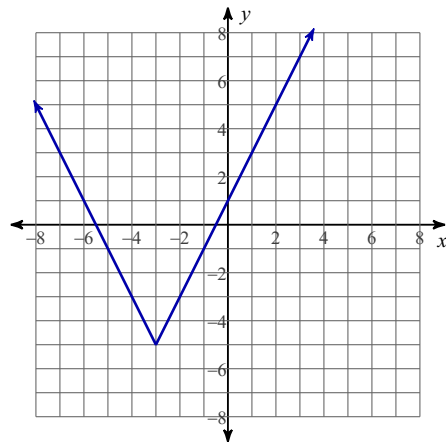
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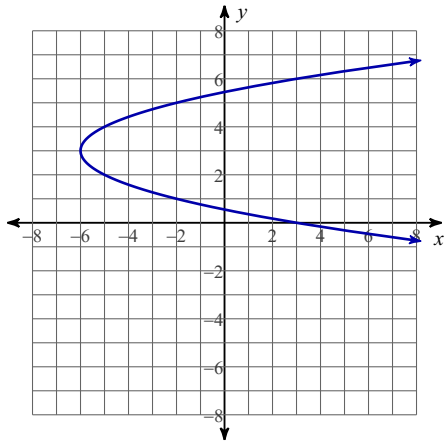
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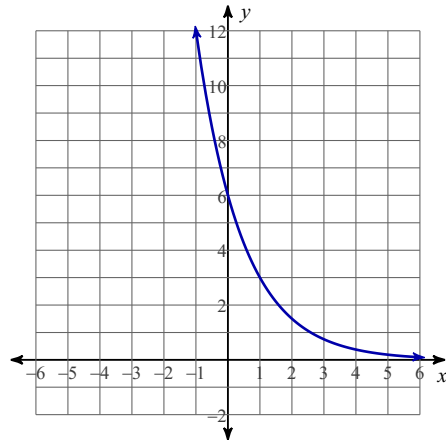
27)



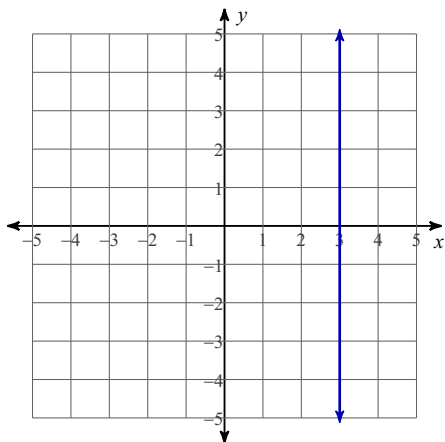
28)



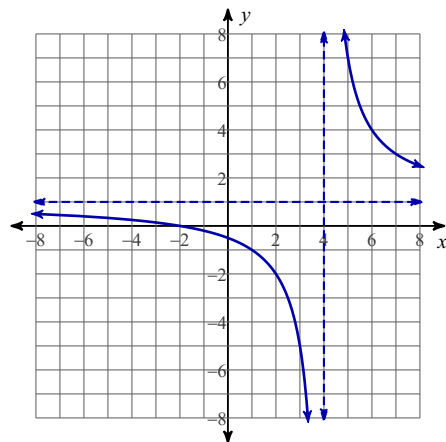
29)



30)



31)



TABLES

Identify the function as Linear, Quadratic, Exponential, or Other given the table. Explain WHY.

32)

$x:$	-2	-1	0	1	2	3	4
$y:$	-5	-1	3	7	11	15	19

33)

$x:$	-2	-1	0	1	2	3	4
$y:$	-1	-1	1	5	11	19	29

34)

$$x: -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3$$

$$y: \frac{1}{16} \quad \frac{1}{4} \quad 1 \quad 4 \quad 16 \quad 64$$

35)

$$x: 0 \quad 1 \quad 2 \quad 3 \quad 4$$

$$y: 3 \quad 4 \quad 8 \quad 18 \quad 31$$

36)

$$x: -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3$$

$$y: 75 \quad 15 \quad 3 \quad \frac{3}{5} \quad \frac{3}{25} \quad \frac{3}{125}$$

37)

$$x: -2 \quad 0 \quad 2 \quad 3 \quad 4$$

$$y: -13 \quad 1 \quad 15 \quad 22 \quad 29$$

38)

$$x: -2 \quad -1 \quad 0 \quad 1 \quad 2$$

$$y: -4 \quad -2 \quad 4 \quad 14 \quad 28$$

39)

$$x: -2 \quad -1 \quad 0 \quad 1 \quad 2$$

$$y: 2 \quad 1 \quad 0 \quad 1 \quad 2$$

STORY PROBLEMS

Identify the function as Linear, Quadratic, Exponential, or Other given a description. Explain WHY.

40) Lizzy helps in registering 6th graders for soccer camp. Each day there are 7 new players that register.

- 41) The area of a garden measures $(x + 2)$ feet in length, and $(2x + 7)$ feet in width.
- 42) Each month the number of visitors to the Roman Colosseum increases by 2.3%.
- 43) The speed at which Shane is driving down the road when he hits every red light.
- 44) The next term is always $\frac{2}{7}$ the previous amount.
- 45) Every month the car insurance company deducts \$5 from your payment for being a good driver.
- 46) The path a rocket takes when it is launched from the ground to where it will land.