

Name: _____ Date: _____

Comparing Functions

Tell whether the table of values represents a linear, exponential, or quadratic function.

1.

X	-1	0	1	2	3
Y	9	2	-1	0	-1

2.

X	-3	-2	-1	0	1
Y	11	8	5	2	-1

3.

X	-1	0	1	2	3
Y	16	8	4	2	1

Write an equation to represent #2 and #3 from above.

2.

3.

4. Describe and correct the error in writing an equation for the function represented by the ordered pairs: $(-1,1)$, $(0,2)$, $(1,4)$, $(2,8)$, $(3,16)$

X	-1	0	1	2	3
Y	1	2	4	8	16

The ordered pairs represent an exponential function, which can be modeled by the equation below:

$$y = mx + b$$

$$y = 2x + 2$$

Match the scenario to the type. You may not use all types.

5. Each year, Jane records the number of tulips in her garden. The first year, she counted 5 tulips. She noticed that the tulips triple each year.
6. Coach Merrill kicks a soccer ball into the air. The height of the ball is measured over the next several seconds. After 3 seconds, it reaches a maximum height of 100 feet.
7. A taxi driver charges an \$8 minimum, plus \$0.10 per mile driven.
8. Ms. Wiggins starts with 100 pencils on the first day of school. Each week, her supply decreases by 6 pencils.
9. Dr. Jones starts with 6000 bacteria in the lab. Each hour, the amount decreases by half.
10. You take out a loan for \$5000, and each month, you pay off \$100.

- A. Increasing Linear Function
- B. Decreasing Linear Function
- C. Exponential Growth
- D. Exponential Decay
- E. Quadratic Function
- F. Arithmetic Sequence
- G. Geometric Sequence

11. On day 1 of a basketball tournament, there are 64 teams. After each round, one-half of the remaining teams are eliminated.
- Would this scenario be best represented by a function or sequence?
 - Make a table showing the number of teams after each round.
 - Determine the type of function/ sequence that best represents this situation.
 - Write a function/ sequence that models the data.
 - After which round do you know the team that won the tournament?

12. Which table of values represents a linear relationship?

X	-1	0	1	2	3
Y	-3	-2	1	6	13

X	-3	-2	-1	0	1
Y	-3	-1	1	3	5

X	-1	0	1	2	3
Y	-1	0	1	8	27

13. The table below shows the average yearly balance in a savings account where interest is compounded annually. No money is deposited or withdrawn after the initial amount is deposited.

Which type of function best models the given data?

- Linear function with a negative rate of change
- Linear function with a positive rate of change
- Exponential Decay
- Exponential Growth

Year	Balance, in Dollars
0	380.00
10	562.49
20	832.63
30	1232.49
40	1824.39
50	2700.54

14. Federal spending (in billions of dollars) for public education during the years 1999 - 2001 is represented by the function $S(x) = 3.32x + 23.16$ where x is the number of years after the beginning of 1990. Which statement below best describes the rate of change of the model?
- Each year the spending increased by 23.16 billion dollars on average
 - Each year 3.32 year period, the spending increased by a billion dollars on average
 - Each year, spending increased by 3.32 billion dollars on average
 - Each year, spending decreased by 3.32 billion dollars on average