

Math 8 Unit 8 Review - Functions

1. (2 points) Does the table represent a function?

| | | | | | |
|----------|---|---|----|---|---|
| x | 4 | 7 | 3 | 1 | 7 |
| y | 4 | 3 | -9 | 2 | 0 |

YES or NO

Why? _____

2. (2 points) Does the list of ordered pairs represent a function?

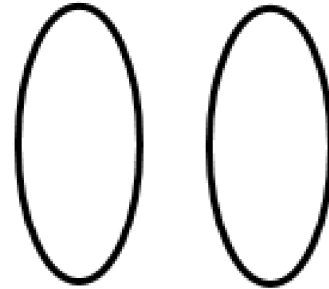
{(9, -1), (-2, 3), (1, 3), (4, 2)}

YES or NO

Why? _____

3. (2 points) Create a mapping diagram that represents the ordered pairs. Does this represent a functions?

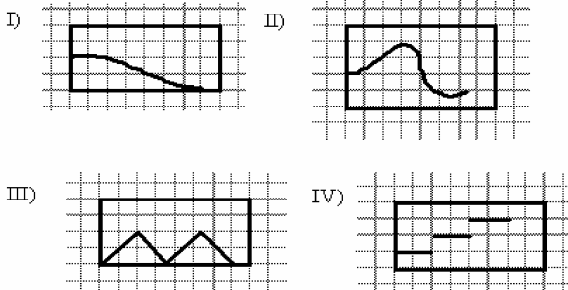
{(4, 2), (4, 4), (5, -1), (5, 3)}



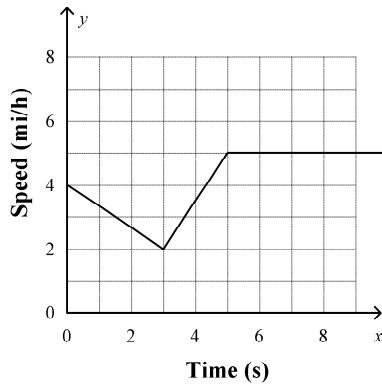
YES or NO

4. (1 point) Which graph below most likely represents each of the following?

- ___ a. I had some money in my account. I added more after my first paycheck, and even more after my next check.
- ___ b. I climb the ladder of a pool slide and go down the slide and underwater and then back to the surface.
- ___ c. The population of an animal species is declining until it is finally extinct.



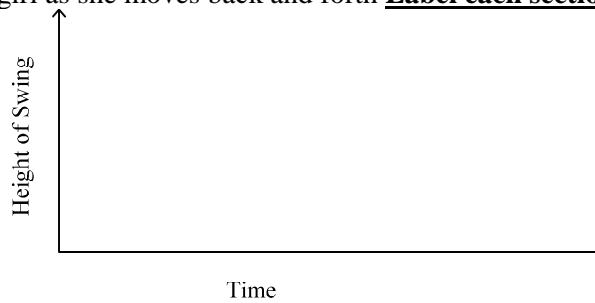
5. (2 points) Use the graph below. Describe the speed of the remote-control car over time.



- a. The speed of the car decreases from 4 mi/h to 2 mi/h in the first 3 seconds, increases to 5 mi/h in the next 5 seconds, and then remains at 5 mi/h for the last 10 seconds.
- b. The speed of the car increases from 4 mi/h to 2 mi/h in the first 3 seconds, decreases to 5 mi/h in the next 2 seconds, and then remains at 5 mi/h for the last 5 seconds.
- c. The speed of the car decreases from 4 mi/h to 2 mi/h in the first 3 seconds, increases to 6 mi/h in the next second, and then remains at 6 mi/h for the last 6 seconds.
- d. The speed of the car decreases from 4 mi/h to 2 mi/h in the first 3 seconds, increases to 5 mi/h in the next 2 seconds, and then remains at 5 mi/h for the last 5 seconds.

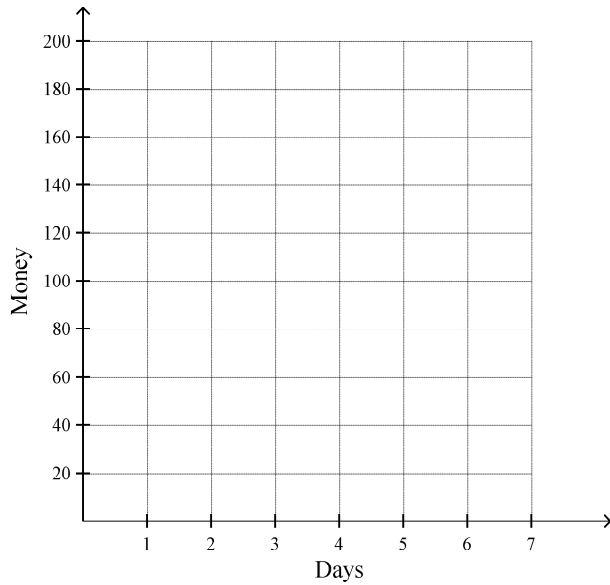
6. (2 points) Sketch a graph of the height of the girl as she moves back and forth **Label each section with the letter.**

- A - Girl sits on the swing
- B - Girl pushes backward with her feet
- C - Mom gives girl a huge push
- D - Girl jumps off swing
- E - Girl lands on ground



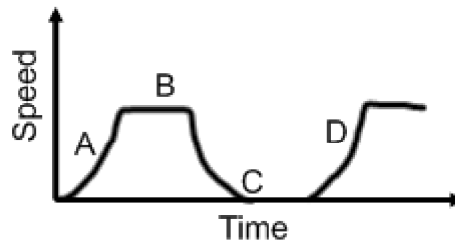
7. (2 points) The data in the table shows the amount of money in an account during the week. **Graph the data.**

| Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------------|-----|----|----|----|-----|-----|-----|
| Amount of Money | 140 | 73 | 48 | 81 | 107 | 178 | 190 |

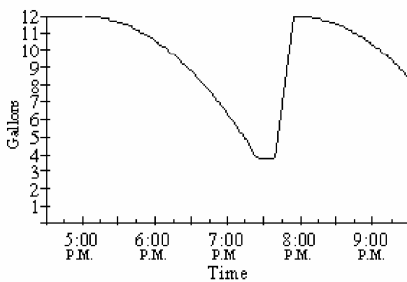


8. (2 points) The graph below shows speed of a car as they are driving. Explain what could be happening at each section of the graph.

- A. _____
- B. _____
- C. _____
- D. _____



9. (3 points) The graph shows the amount of gas in the tank of Sharon’s car during a trip to her mom’s house. **Describe what might be happening at each time.**



- 4:30PM: _____
- 6PM: _____
- 7:45PM: _____

10. (2 points) Is the function represented by the table
Linear or Non-Linear?
 (circle one)

| x | y |
|----|----|
| -3 | 3 |
| -2 | 6 |
| -1 | 12 |
| 0 | 24 |
| 1 | 48 |

Why? _____

11. (2 points) Is the function represented by the table
Linear or Non-Linear?
 (circle one)

| x | -2 | -1 | 0 | 1 | 2 |
|---|-----|----|----|----|---|
| y | -10 | -7 | -4 | -1 | 2 |

Why? _____

12. (2 points) Create a table of values that would represent a linear and a non-linear function.

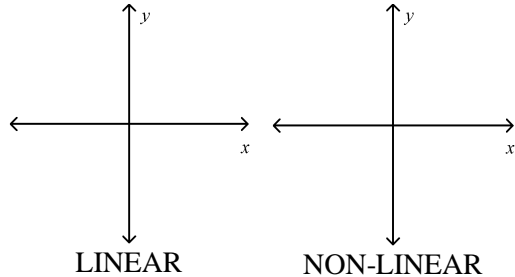
Linear

| x | y |
|---|---|
| | |
| | |
| | |
| | |
| | |

Non-Linear

| x | y |
|---|---|
| | |
| | |
| | |
| | |
| | |

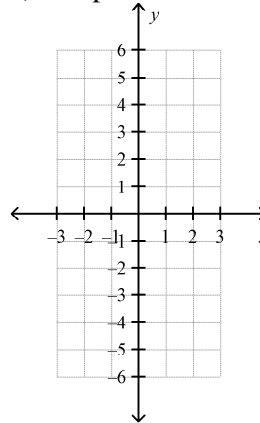
13. (2 points) Sketch a graph of an example of a linear function and another of a non-linear function.



14. (4 points)
 a) Make a table of value from the equation.
 $y = x^2 - 2$

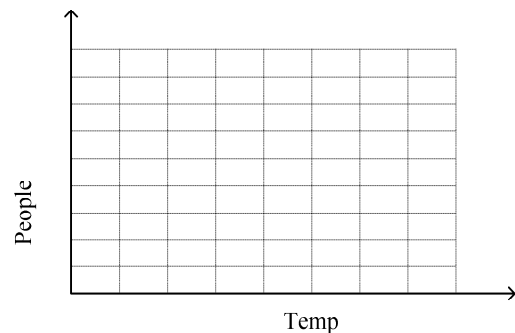
| x | y |
|----|---|
| 2 | |
| 1 | |
| 0 | |
| -1 | |
| -2 | |

- b) Graph the ordered pairs from the table.



15. (2 points) Graph the relationship between the outdoor temperature and the number of people at a park.

| Temperature | People at Park |
|-------------|----------------|
| 30 | 5 |
| 40 | 15 |
| 50 | 35 |
| 60 | 45 |
| 70 | 65 |
| 80 | 90 |

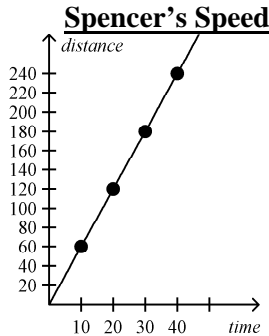


16. (3 points) John and Spencer are comparing how fast they can ride their bikes.

John's Speed

| | | | | |
|----------------|----|-----|-----|-----|
| Time (sec) x | 10 | 20 | 30 | 40 |
| Feet y | 50 | 100 | 150 | 200 |

a) Find John's unit rate:



b) Find Spencer's unit rate:

c) Which boy rides faster?

17. (2 points) Penny and Henry are each saving money to buy a car. The amount Penny is saving is represented by the equation: $y=72x$, where y is the total amount saved and x is the number of weeks that she has been saving.

a) Find Penny's unit rate:

Henry's saving is represented by the table below:

| Weeks (x) | Total (y) |
|---------------|---------------|
| 2 | 176 |
| 3 | 264 |
| 4 | 352 |
| 5 | 440 |
| 6 | 528 |

b) Find Henry's unit rate:

18. (2 points) Write an equation that represents the table.

| x | y |
|-----|-----|
| 0 | -4 |
| 2 | 0 |
| 4 | 4 |
| 6 | 8 |
| 8 | 12 |

$y = \underline{\hspace{1cm}} x + \underline{\hspace{1cm}}$

19. (2 points) Write an equation for the data in the table.

| | | | | | |
|-----|---|----|----|----|----|
| x | 1 | 2 | 3 | 4 | 5 |
| y | 7 | 11 | 15 | 19 | 23 |

$y = \underline{\hspace{1cm}} x + \underline{\hspace{1cm}}$

20. (2 points) A treadmill at the local gym asks users to enter the difficulty level of their workout. The number of minutes of the workout increases with difficulty, as shown in the table below.

| Difficulty level (x) | Number of Minutes (y) |
|--------------------------|---------------------------|
| 3 | 22 |
| 4 | 28 |
| 5 | 34 |
| 6 | 40 |
| 7 | 46 |

a) Following the pattern in the table, how many minutes would be in a workout with a difficulty of 8?

b) Write an algebraic function to explain the relationship.