Additional Problems: Functions & Their Graphs

**Naming, Evaluating, & Interpreting Functions**

1. The number of bacteria triples every 5 days. If the bacteria population starts with 10 bacteria, then the equation A(*t*) = 10(3)^0.2*t* can represent the number of bacteria. Find the value for A(15). The number of bacteria after 15 days is \_\_\_\_\_.
2. The number of cells quadruples every 3 days. If the cell population starts with 8 cells, then the equation A(*t*) = 8(4)^*t* can represent the number of cells. Find the value for A(9). The number of cells after 9 days is \_\_\_\_\_.
3. The distance away from the city of Greenfield is a function of time. The function D(*h*) = 500 - 50*h* represents the distance in miles away from Greenfield as you travel toward the city, based on the number of hours, *h*, you have traveled. Find the distance left to get to Greenfield after 4 hours of traveling. Enter your response in decimal form. The distance that you have left to travel is \_\_\_\_\_\_\_ miles.
4. The distance away from the city of Rivertown is a function of time. The function D(*h*) = 600 - 75*h* represents the distance in miles away from Rivertown as you travel toward the city, based on the number of hours, *h*, you have traveled. Find the distance left to get to Rivertown after 2 hours of traveling. Enter your response in decimal form. The distance that you have left to travel is \_\_\_\_\_\_\_ miles.
5. Use the table to answer the question

|  |  |
| --- | --- |
| x | y |
| 0 | 3 |
| 1 | 7 |
| 2 | 11 |
| 3 | 15 |

Which of the following equations correctly describes the function in the table using function notation?

* 1. *f*(x) = 4x + 3
  2. *f*(x) = 3x + 4
  3. *f*(x) = 4x - 3
  4. *f*(x) = 3x – 4

1. Use the table to answer the question

|  |  |
| --- | --- |
| x | y |
| 0 | 2 |
| 1 | 6 |
| 2 | 10 |
| 3 | 14 |

Which of the following equations correctly describes the function in the table using function notation?

* 1. *f*(x) = 4x + 2
  2. *f*(x) = 2x + 4
  3. *f*(x) = 2x - 4
  4. *f*(x) = 4x – 2

1. Liam is throwing a baseball and the height the ball travels is a function of time. The function h(t) = -t^2 + 8t + 5 gives the height of the ball, h(t), given the number of seconds, t, that the ball has been in the air. After flying through the air for 6 seconds, what is the height of the ball? Find h(6).
   1. 29
   2. 30
   3. 29.5
   4. 53
2. Sophia is kicking a soccer ball and the height the ball travels is a function of time. The function h(*t*) = -2*t*^2 + 12t + 1 gives the height of the ball, h(*t*), given the number of seconds, t, that the ball has been in the air. After flying through the air for 4 seconds, what is the height of the ball? Find h(4).
   1. 17
   2. 25
   3. 33
   4. 41
3. The function A(s) = 6s^2 represents the surface area of a cube with side length s. Which is the correct interpretation for the function notation A(4) = 96?
   1. The surface area of the cube is 4 when the side length is 96.
   2. The surface area of the cube is 96 π when the side length is 4.
   3. A cube of 96 is produced from a side length of 4.
   4. A side length of 4 gives the value 96.
4. The function S(a) = 2πa^2 represents the surface area of a sphere with radius a. Which is the correct interpretation for the function notation S(5) = 50π?
   1. The surface area of the sphere is 5 when the radius is 50π.
   2. The surface area of the sphere is 50π when the radius is 5.
   3. A sphere of 50π is produced from a radius of 5.
   4. A radius of 5 gives the value 50.