1. John was filling up the 150-gallon water tank for the animals. The hose he was using would fill it up at a rate of 20-gallons per minute.
	1. What is the range of the function
	2. What is the domain of the function
	3. Write an equation to model the function using function notation.
	4. Identify the x- and y-intercepts if you were to graph the function and explain what they represent in the context of the problem.
2. The production assembly line attaches fasteners to filing cabinet drawers shown below. What is the correct interpretation for the average rate of change for this linear function?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Fasteners | 6 | 18 | 24 | 36 | 42 | 60 | 72 |
| minutes | 10 | 30 | 40 | 60 | 70 | 100 | 120 |

1. The machine attaches 6 fasteners every minute
2. The machine attaches 10 fasteners every 6 minutes
3. The machine attaches 18 fasteners every 30 minutes
4. The machine attaches 1 fastener per minute
5. The table below shows the values for the exponential function. Select the graph and the description that math the values in the table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S | -1 | 0 | 1 | 2 | 3 |
| F(s) | 1.5 | 3 | 6 | 12 | 24 |

 A. B. 

C. The value of the function approaches infinity as x approaches 2

D. As x increases, the value of the function approaches 0

E. As x decreases, the value of the function approaches 0

4. How is the graph effected if the equation y = 3x – 5 is changed to y = 3x + 2?

5. Identify the x- and y-intercepts for 6x – 8y = 24

 x-intercept: (\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_)

 y-intercept: (\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_)

6. The number of bacteria germs on the door handle could be modeled by f(n) = 100($2^{n}$), where the n is the number of seconds and f(n) represents to total number of bacteria.

Which graph best represents the relationship between n and f(n)?

   

7. Look at the following functions f(x) and g(x). Use the graph to find the values below.

 g(x) f(x)



f(0) = \_\_\_\_\_\_\_\_\_\_\_\_\_

f(1) = \_\_\_\_\_\_\_\_\_\_\_\_\_

g(-1) = \_\_\_\_\_\_\_\_\_\_\_\_

f(2) – g(1) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

g(x) = 18 when x = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Jim is running a landscaping business. It costs him $350 each week for operating expenses. Jim’s weekly profit, P, can be found by the function P = 45n – 350, where n is the number of lawns that he mows.

On the graph of this function, what does the x-intercept represent?

9. Some equations are shown below using equations, tables, and graphs. Which relationships do not show a constant rate of change over the domain?

 A. f(x) = 3($5^{x}$)

 B.  C. 

 D.  E. 

F.  G. 

10. Select the appropriate equation for each statement below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | y = -$\frac{2}{5}$x + 25 | y = -$\frac{2}{5}$x – 8  | y = $\frac{5}{2}$x + 50 | y = $\frac{5}{2}$x – 12  |
| Which equation is parallel to y = -$\frac{2}{5}$x + 4 and passes through the point (-20, 0)? |  |  |  |  |
| Which equation is perpendicular to y = -$\frac{2}{5}$x + 4 and passes through the point (-20, 0)? |  |  |  |  |

11. Tim is ordering chicken wings for the Super Bowl. Each store charges a delivery fee in addition to the price per person. Each store gives Tim a pricing plan in a different way, where C is the total cost in dollars and n is the number of people that attend the party.

Larry’s: C(n) = 2.25n + 85

Jimmy’s:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| n | 10 | 15 | 20 | 25 |
| C(n) | 105 | 120 | 135 | 150 |

Carter’s:

Cost

 

 1 2 3 4 5

Who has the lowest delivery charge: Larry, Jimmy, Carter? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which store will give Tim the best price for 20 people? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. Which function is shown by the graph below?

