1. The Earth’s temperature increases as you move from the surface toward the center. It increases

approximately 20°C for each kilometer beneath the Earth’s surface. The temperature (°C) is a function of the distance beneath the Earth’s surface (km). Assume the temperature on the surface is 15°C.

1. Complete the table below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Distance Beneath Earth’s Surface (in km) | 0 | 1 | 2 | 3 | 4 |
| Temperature (in degrees Celsius) |  |  |  |  |  |

b. Write a linear equation relating temperature *T* and distance beneath the Earth’s surface *D*.

c. Write a NOW - NEXT equation that shows how the temperature changes with each additional

kilometer beneath the Earth’s surface.

2. Summer Time Ice Cream Parlor caters Make Your Own Sundae parties. They charge $60 to deliver, set up the party, and serve. In addition, they charge $2.50 per person at the party. Which of the following equations could be used to determine the cost *C* of the party if there were *n* people attending the party? Explain your reasoning.

C = 60n + 2.50 C = 60 + 2.50n C = 62.50n

3. Graph the equation. *y* + 2 = -2(x – 3)



4. A student finds the slope of the line between (7, 8) and (9, 15). She writes. What mistake did she make? Correctly solve the problem.

Error:

Solution worked out correctly:

5. Consider the line with a graph containing the points (4, 9) and (10, 21).

a. Write the equation in slope-intercept form.

b. Is the point (-2, -3) on the graph of the line? Explain.

c. Give the coordinates of one other point (one that has not been used already) that will also be on this line. Explain how you know your point will be on the line.

6. Describe a similarity and a difference between the graphs of *f(x) = 12x + 4* and *g(x) = 24x – 4?*

7. Michelle got her uncle to sponsor her for the walk to raise money for cancer research. He said he would use the equation ***A*** = 8 + 2***d***, where ***A*** is the amount he will pay if Michelle walks ***d*** miles.

1. Identify the slope and y-intercept.

Slope:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Y-Intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Explain the meaning of the slope and the y-intercept in this equation in terms of distance walked and the amount Michelle’s uncle will pay.

c. On the grid below, sketch a graph that indicates how much her uncle will pay as a function of the distance that she walks.



2

4

6

8

12

10

22

20

18

16

14

1

2

3

4

5

6

7

8

9

10

Distance (miles)

Amount Uncle Pays

8. Find the rate of change. Explain what the rate of change means for this problem.

Rate of Change:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explanation:

9.) Find the x-intercept and the y-intercept of the following equation. -3x +5y = 15

X-Intercept:

Y-Intercept:

Y-Intercept:

10.) Write an equation in slope intercept form for the line that is perpendicular to the given line and that passes through the given point.

(-5, 5); y= -5x + 9

11. Your percent grade varies directly with the number of correct answers. You got a grade of 80 when you had 20 correct answers.

a**.** Write an equation for the relationship between percent grade and number of correct answers.

1. What would your percent grade be with 24 correct answers?

Is each equation a direct variation? If it is, find the constant of variation.

12. 8*x* + 2*y* = 0 13. *x* – 3*y* = 6

Yes/No Yes/No

K:\_\_\_\_\_\_\_\_\_\_ K:\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14.  Circle one: Linear Nonlinear  If linear, equation \_\_\_\_\_\_\_\_\_\_\_\_\_\_   |  |  | | --- | --- | | x | y | | -2 | -3 | | -1 | -1 | | 0 | 1 | | 1 | 3 | | 15.  Circle one: Linear Nonlinear  If linear, equation \_\_\_\_\_\_\_\_\_\_\_\_\_\_   |  |  | | --- | --- | | x | y | | 6 | 2 | | 3 | 1 | | -3 | -1 | | -6 | -2 | |

Identify the following tables as linear or nonlinear. If linear, write the equation for the table of values in slope-intercept form.

16. The local bagel store sells a baker’s dozen of bagels (13 bagels) for $6.50, while the grocery store down the street sells a bag of 6 bagels for $2.58.

1. What is the cost of one bagel at each location?

Bagel store:\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grocery store: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Write the equation to describe the cost of bagels at each store if *c* is the cost and *b* is the number of bagels purchased.

Bagel store:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grocery store: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How does the cost of one bagel relate to the equations you write in part b?
2. If you spend $22 on bagels, about how many bagels can you purchase at each location? Which store offers the better buy and by how much?

Bagel store:\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Grocery store: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Better buy?