**Answer all questions with complete sentences. Show work.**

1. Describe what the rate of change looks like in each graph.

 a. the graph of a person walking at a steady rate toward a motion sensor.

 b. the graph of a person standing still

 c. the graph of a person walking at a steady rate away from a motion sensor.

 d. the graph of one person walking at a steady rate faster than another person.

2. The data in the table represent the approximate wind chill temperatures in degrees Fahrenheit for a

 a wind speed of 20mi/h. Use this data set to complete each task.

|  |  |
| --- | --- |
| **Temperature****(°F)** | **Wind Chill****(°F)** |
| -5 | -28.540 |
| 0 | -21.980 |
| 1 | -20.668 |
| 2 | -19.356 |
| 5 | -15.420 |
| 15 | -2.300 |
| 35 | 23.940 |

a. Define the input and output variables for this

 relationship.

b. Plot the points and describe the model.

c. Write a NOW-NEXT rule for the data.

d. Write an equation in the form of y = mx + b

 to describe the data.

e. Graph your equation on the same axis as your

 scatter plot. Does it make sense to draw a line

 through the points? Where does the y-intercept

 show up in your equation?

e. Identify and explain the real-world meaning for the

 rate of change and y-intercept.

f. Explain how to use the rate of change to find the actual temperature if the weather

 report indicates a wind chill of 9.5° with 20 mi/h winds.

3. Determine the slope of the line that passes through each pair of points. Show Work!

 a. (2, 3), (9, 7) b. (2, 6), (-1, 3) c. $\frac{3}{4}$, $\frac{5}{4}$ , -$\frac{1}{2}$, -1

1. Describe what the rate of change looks like in each graph.

 a. the graph of a person walking at a steady rate toward a motion sensor.

 The rate is negative, so the line goes from the upper left to the lower right.

 b. the graph of a person standing still

 The rate is neither negative nor positive but zero. The line is a horizontal line.

 c. the graph of a person walking at a steady rate away from a motion sensor.

 The rate is positive, so the line goes from lower left to upper right.

 d. the graph of one person walking at a steady rate faster than another person.

 The rate for the speedier walker will be greater than the rate for the person

 walking more slowly, so the graph for the speedier walker will be steeper

 than the graph for the slower walker.

The data in the table represent the approximate wind chill temperatures in degrees Fahrenheit for a

 a wind speed of 20mi/h. Use this data set to complete each task.

|  |  |
| --- | --- |
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 scatter plot. Does it make sense to draw a line

 through the points? Where does the y-intercept

 show up in your equation?

f. Identify and explain the real-world meaning for the

 rate of change and y-intercept.

g. Explain how to use the rate of change to find the actual temperature if the weather

 report indicates a wind chill of 9.5° with 20 mi/h winds.

a. Let x be the input variable representing the temperature in °F, and let y be the output variable

 representing wind chill in °F.

c. NEXT = Now + 1.312, starting with -21.980

d. y = -21.980 + 1.312x

e. Yes, a line represents every possible temperature. The y-intercept shows up as the value of a in the

 equation. It is not the starting value in the rule.

f. The slope is 1.312 and the y-intercept is -21.980. The real world meaning is that when the

 temperature is 0°F, the wind chill is -21.980°F and as the temperature goes up by one degree, the

 wind chill gets warmer by 1.312°F.

g. Encourage a variety of approaches: tracing, calculator tables, or working backward to solve the

 equation 9.5 = -21.980 + 1.312x. Explanations will vary. Students can add 1.312 to -2.3 and add 9° to

 15°. They can also subtract 1.312° eleven times from 23.940° and subtract 11° from 35°. The answer

 Is 24°F.

3. Determine the slope of the line that passes through each pair of points. Show Work!

 a. (2, 3), (9, 7) b. (2, 6), (-1, 3) c. $\frac{3}{4}$, $\frac{5}{4}$ , -$\frac{1}{2}$, -1

 a. $\frac{4}{7}$ b. 1 c. $\frac{9}{5}$