**STATION 1:**

1. When Robin and Mike had to find a linear function with graph passing through the two points A(-3, 12) and Q(4, -2), they produced the following work.

**The rule will be in the form y = mx + b**

**The slope of the line is -2 (1)**

**So, y = -2x + b (2)**

**Since A(-3, 12) is on the line, 12 = -2(-3) + b (3)**

**So 6 = b (4)**

**So, the rule is y = -2x + 6 (5)**

1. Did Robin and Mike find the correct function rule? If so, what do you think their reasoning was for each step?If not, where did they make an error?
2. Use reasoning similar to that of Robin and Mike to find a function rule for the line through the points (-2, 2) and (6, 10).
3. Use similar reasoning to find a functionrule for the line through the points (3, 5) and

(8, -15).

**STATION 2:**

A car is traveling form Sioux Falls, South Dakota, to Mt. Rushmore, which is near Rapid City, South

Dakota. The car is traveling about 54 mi/hr, and it is about 370 miles from Sioux Falls to

Mt. Rushmore.

a. Write a NOW-NEXT rule and create a table of values in the form (*time, distance from*

*Mt. Rushmore*) for the relationship from 0 to 6 hours.

b. Graph a scatter plot using 1 hour time intervals.

c. Draw a line through the points of your scatter plot. What is the real-world meaning of this line?

What does the line represent that the points alone do not?

1. What is the slope of the line? What is the real-world meaning of the slope?

e. When will the car be a the Wall Drug Store, which is 80 miles from Mt. Rushmore? Explain how

you know.

f. When will the car arrive at Mt. Rushmore? Explain how you know.

**STATION 3:**

The Riverside Adventure Skydiving Club is planning a spring skydiving lesson and first jump.

Through the club newsletter, club members were asked to take a poll as to whether or not they would purchase a video of their jump for various prices.

The result s of the poll are shown in the table below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost** (in dollars) | **25** | **30** | **35** | **40** | **50** | **60** | **75** |
| **Number of Buyers** | **93** | **89** | **77** | **71** | **64** | **55** | **38** |

1. Create a linear model for the (*cost, number of buyers)* data. Represent your linear model

as a graph and as a function rule.

1. Use your linear model from Part a to predict the number of members who would purchase a video of their jump for $45. For $70. For $90. For $10. Which estimates would you most trust? Why?
2. Should you use your model to predict the number of buyers if videos cost $125? Why or why not?
3. For what cost of a video would you predict 50 buyers? 75 buyers? 100 buyers?

**STATION 4:**

The graph below shows the relationship between weekly profit and the number of customers per

week for Skate World Roller Rink.

**Skate World Weekly Profit** 

**Number of Customers per Week**

**Week ly Profit (in dollars)**

0

-2,000

-1,000

1,000

2,000

3,000

4,0000

200 400 600 800 1,000 1,200

1. Determine the slope and y-intercept of the line that fits this data pattern.

b. Explain what the slope and y-intercept of the line tell you about the relationship between

Skate World profit and number of customers per week.

c. If Skate World reached maximum capacity during each skating session for a week, admissions

for that week would total 2,400 customers. Estimate the rink’s profit in this situation.

Explain your reasoning.

d. What is the meaning of the ordered pair (400, 0) in terms of the number of customers and

weekly profit?