1. 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

 a. 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?

2. The table below show data from an investigation entitled “Taking Chances”.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Number of Trials** | 20 | 40 | 60 | 80 | 100 | 120 |
| **Cumulative Profit (in $)** | 3 | 7 | 11 | 15 | 19 | 23 |

 a. Explain why a linear model is reasonable for these data.

 b. Is cumulative profit an exact linear function of the number of trials? Explain why

 or why not.

 c. Write a NOW-NEXT rule to represent the relationship between number of trials and

 cumulative profit.

 d. Write a function rule in the form y = mx + b.

 e. What is the coefficient of the independent variable in your model in Part d? What does

 it tell you about the relationship between the cumulative profit and number of trials?

 f. How many trials will need to be taken in order to have a cumulative profit of $74? Explain

 your reasoning.