

Companies that offer credit cards pay the people who collect applications for those cards and the people who contact current cardholders to sell them additional financial services.

Selling Credit Cards

 1. For collecting credit card applications, Barry’s daily pay B is related to the number of

 of applications he collects n by the rule B = 20 + 5n.

 a) Use the function rule to complete this table of sample (n, B) values:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Number of Applications | 0 | 1 | 2 | 3 | 4 | 5 | 10 | 20 | 50 |
| Daily Pay (in dollars) |  |  |  |  |  |  |  |  |  |

 b) Compare the pattern of change shown in your table with that shown in the graph

 from the Think About the Situation.

 c) How much will Barry earn on a day when he does not collect any credit card

 applications? How can this information be seen in the rule B = 20 + 5n? In

 the table of sample (n, B) values? In the graph?

 d) How much additional money does Barry earn for each application he collects?

 How can this information be seen in the rule B = 20 + 5n? In the table?

 In the graph?

 e) Use the words NOW and NEXT to write a rule showing how Barry’s daily pay

 changes with each new credit card applications he collects.

 2. Cheri also works for the credit card company. She calls existing customers to sell

 them additional services for their account. The next table shows how Cheri earns

 for selling selected numbers of additional services.

**Selling Credit Card Applications**

**Problem 2**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of Services Sold | 10 | 20 | 30 | 40 | 50 |
| Daily Pay (in dollars) | 60 | 80 | 100 | 120 | 140 |

a.

 Does Cheri’s daily pay appear to be a linear function of the number of services sold? Explain.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Number of Services Sold | 0 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 100 | 101 |
| Daily Pay (in dollars) |  | 60 |  | 80 |  | 100 | 120 | 140 |  |  |

b.

c. Using your table from part B, study the rate of change in Cheri’s daily pay as the number of services she sells increases by completing entries in this table:

|  |  |  |
| --- | --- | --- |
| **Change in Sales** | **Change in Pay (in $)** | **Rate of Change (in $ per sale)** |
| 10 to 20 |  |  |
| 20 to 25 |  |  |
| 25 to 40 |  |  |
| 50 to 100 |  |  |

What do you notice about the rate of change in Cheri’s daily pay as the number of services she sells increases?

d. Use the words NOW and NEXT to write a rule showing how Cheri’s pay changes with each new additional service she sells.

e. Consider the following function rules:

 C = 2 + 40n C = n + 2 C = 40 + 2n

 C = 50 + n/2 C = 2n + 50

I. Which of the rules show how to calculate Cheri’s daily pay C for any number of services *n* she sells? How do you know?

II What do the numbers in the rule(s) you selected in part I tell you about Cheri’s daily pay?

3. The diagram below shows graphs of pay plans offered by three different banks to employees

 who collect credit card applications.

 

Atlantic Bank: A = 20 + 2n

Boston Bank: B = 20 + 5n

Consumers Bank: C = 40 + 2n

III

II

I

 a. Match each function rule with its graph. Explain how you can make the matches

 without calculations or graphing help.

 b. What do the numbers in the rule for the pay plan at Atlantic Bank tell you about the

 relationship between daily pay and the number of credit card applications collected?