**Algbebra 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Credit Card Debt**

**Situation 1**

Nate went on a shopping spree in Boston and spent $400 on clothes. He charged the clothes on a credit card that charges 18% annual interest (or 1.5% monthly interest) but he didn’t tell his parents. Each month, when the bill came, his mom threw it in the trash. After two years, Nate had to pay the bill.

**Directions:** Make a link sheet (table, graph and equation) to show Nate’s debt after each month. The table is started for you. Round values to nearest penny.

|  |  |  |
| --- | --- | --- |
| Month | $ Nate Owes | **Graph** |
| 0 | 400.00 |  |
| 1 | 406.00 |
| 2 | 412.09 |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |
| 11 |  |
| 12 |  |
| 13 |  |
| 14 |  |
| 15 |  |
| 16 |  |
| 17 |  |
| 18 |  |
| 19 |  |
| 20 |  |
| 21 |  |
| 22 |  |
| 23 |  |
| 24 |  |

**Equation y =**

How much would Nate owe if he refused to pay anything for 20 years?

**Situation 2**

Ari Rose and Noranator decided to take a weekend road trip to New York City. They each charged $600 on their credit cards that charge 15% annual interest (or 1.25% monthly interest). Ari decides to pay $20 per month while Nora decides to pay $50 per month on the bill. Complete the table below to show how much each girl owes at the end of one year.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Ari’s Credit Card Payments | | | | |
| Month | Beginning Balance | Payment | Balance Before Interest | Interest Charge (1.25%) | Ending Balance |
| 1 | 600.00 | 20.00 | 580.00 | 7.25 | 587.25 |
| 2 | 587.25 | 20.00 | 567.25 | 7.09 | 574.34 |
| 3 | 574.34 | 20.00 | 554.34 | 6.93 | 561.27 |
| 4 |  | 20.00 |  |  |  |
| 5 |  | 20.00 |  |  |  |
| 6 |  | 20.00 |  |  |  |
| 7 |  | 20.00 |  |  |  |
| 8 |  | 20.00 |  |  |  |
| 9 |  | 20.00 |  |  |  |
| 10 |  | 20.00 |  |  |  |
| 11 |  | 20.00 |  |  |  |
| 12 |  | 20.00 |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Nora’s Credit Card Payments | | | | |
| Month | Beginning Balance | Payment | Balance Before Interest | Interest Charge (1.25%) | Ending Balance |
| 1 | 600.00 | 50.00 | 550.00 | 6.88 | 556.88 |
| 2 | 556.88 | 50.00 | 506.88 | 6.34 | 513.21 |
| 3 | 513.22 | 50.00 | 463.22 | 5.79 | 469.00 |
| 4 |  | 50.00 |  |  |  |
| 5 |  | 50.00 |  |  |  |
| 6 |  | 50.00 |  |  |  |
| 7 |  | 50.00 |  |  |  |
| 8 |  | 50.00 |  |  |  |
| 9 |  | 50.00 |  |  |  |
| 10 |  | 50.00 |  |  |  |
| 11 |  | 50.00 |  |  |  |
| 12 |  | 50.00 |  |  |  |

Estimate the number of months it will take each girl to pay her debts.