

After watching the *Credit Card Basics Part 2* video, make sense of the mathematics by reading through the problem situation and solution. Use the comments and questions in bold to help you understand how different repayment plans influence the total amount you will pay and the amount of time it takes to pay off a credit card balance.

Problem: Chris is working to pay off his credit card debt. He has stopped making purchases on his card and wants to set up a plan to pay off the balance he has already accumulated. Consider the options below to help Chris determine a reasonable repayment plan.

What is the Minimum Payment Due on a credit card statement?

The minimum payment due is the smallest amount you can pay each month.

How is the Minimum Payment Due determined?

Credit card companies determine the minimum payment by taking a small percentage of the current balance.

Chris's minimum payment is \$121.78. The table below illustrates what will happen each month if Chris does not make additional purchases and pays the minimum payment.

Month	Current Balance	Minimum Due	Balance After Payment	Interest Charge	New Balance
Month 1	\$3,044.39	\$121.78	\$2,922.61	\$60.04	\$2,983.26
Month 2	\$2,983.26	\$119.33	\$2,863.93	\$59.43	\$2,923.35
Month 3	\$2,923.35	\$116.93	\$2,806.42	\$58.23	\$2,864.65
Month 4	\$2,864.65	\$114.59	\$2,750.07	\$57.06	\$2,807.13
Month 5	\$2,807.13	\$112.29	\$2,694.85	\$55.92	\$2,750.76
Month 6	\$2,750.76	\$110.03	\$2,640.73	\$54.80	\$2,695.53
Month 7	\$2,695.53	\$107.82	\$2,587.71	\$53.69	\$2,641.40
etc.					

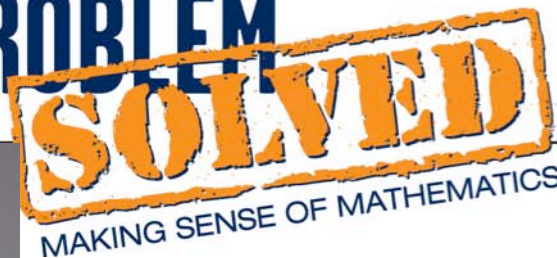
Why isn't the balance that results from Chris making the minimum payment the new balance for the next month?

Remember that the credit card companies charge interest for the first month on the balance remaining after Chris makes his minimum payment. So the new balance for month two is the sum of the balance remaining after Chris makes his payment and the interest charged for that month.

The balance for month two is less than the balance for month one. What does this imply about the minimum payment amount for month two as compared to month one?

Because the balance for month two is less than that for month one and the minimum payment is determined as a percentage of the balance owed, the minimum payment for month two will be less than for month one.

If Chris makes no additional purchases and continues to pay the minimum due, what will happen to the current balance and minimum payment each month?



As long as Chris makes no additional purchases and continues to pay the minimum due each month, the current balance and minimum payment will decrease each month.

If Chris only makes the minimum payment each month, it will take 11 years and 7 months to pay off his credit card balance, and Chris will end up paying a total of \$5,875.05. Given that he started owing \$3,044.39, how much will Chris pay in interest alone using this plan?

Since the total amount Chris will pay with this plan is \$5,875.05 and the original balance was \$3,044.39, Chris will end up paying $\$5,875.05 - \$3,044.39$ or \$2,830.66 in interest.

Credit card statements also give an amount necessary to pay off the total balance in three years. In this case, the amount is \$122. How much more is this than the original minimum payment?

The original minimum payment was \$121.78, so the three-year payment is just 22 cents ($\$122 - \$121.78 = 0.22$) more than the original minimum payment.

What do you need to remember about the three-year payment amount given on a credit card statement?

In order to pay off the balance in three years, you need to make the three-year payment every month no matter what future statements show.

Here is a table showing the three-year payment plan.

Month	Current Balance	Payment	Balance After Payment	Interest Charge	New Balance
Month 1	\$3,044.39	\$122.00	\$2,922.39	\$60.64	\$2,983.03
Month 2	\$2,983.03	\$122.00	\$2,861.03	\$59.37	\$2,920.40
Month 3	\$2,920.40	\$122.00	\$2,798.40	\$58.07	\$2,856.46
Month 4	\$2,856.46	\$122.00	\$2,734.46	\$56.74	\$2,791.20
Month 5	\$2,791.20	\$122.00	\$2,669.20	\$55.39	\$2,724.59
Month 6	\$2,724.59	\$122.00	\$2,602.59	\$54.00	\$2,656.59
...					
Month 34	\$177.67	\$122.00	\$55.67	\$1.16	\$56.83
Month 35	\$56.83	\$56.83	0	0	0

If Chris follows this plan, how much sooner will he pay off his balance, and how much will Chris save in interest compared to the minimum-payment plan?

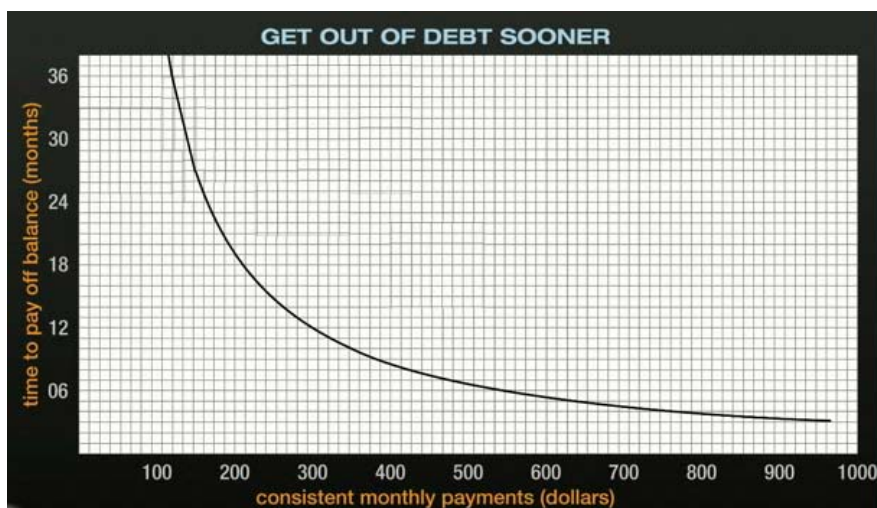
If he continues his plan of making \$122 payments each month, Chris will pay off his debt about 8½ years sooner, and by totaling all the interest payments he makes with this plan and comparing this value to the amount of interest he would pay using the minimum payment plan we can find that he will save \$1,635.20 in interest.

In month two of this plan, the three-year payment given on Chris's credit card statement is only \$119. Why is the three-year payment amount listed on the statement for month two less than it was for month one?

The three-year payment on the new statement is less because statements are always calculated to pay off the current balance in three years from the date of the statement. If Chris's plan is to pay off his balance in three years, he will have to ignore the three-year payment amount given on future statements and continue to make payments of \$122 every month.

Today, Chris made \$23 in tips, which is pretty typical. Let's say he is disciplined and puts \$23 more toward his payment each month. Then his payments will be \$145. Below is a graph that shows consistent monthly payments and the corresponding time it takes to pay off the current balance. Using the graph to estimate, how much sooner will Chris pay off his balance by paying \$145 each month rather than \$122?

Chris will pay off his balance approximately seven months sooner by increasing the amount he pays each month from \$122 to \$145.



What is important to remember about the relationship between the consistent monthly payment amount and the time it takes to pay off the balance owed?

It is important to remember that as the monthly payment increases the time it takes to pay off the balance decreases. The more Chris pays each month, the sooner he will pay off his total balance.

Notice that adding \$23 to any monthly payment will not result in the balance being paid off seven months sooner. What is the approximate difference in the amount of time it will take to pay off the balance owed if we compare \$300 payments to \$323 payments?

Making \$323 payments instead of \$300 payments only reduces the time necessary to pay off the total balance by about one month.



When Chris changed his monthly payment from \$122 to \$145 dollars, a \$23 difference, he reduced his repayment time by seven months, but when he changed his monthly payment amount from \$300 to \$323, still a \$23 difference, Chris only gained one month. Why does the impact of an additional \$23 diminish as the total monthly payment amount increases?

The impact of an additional \$23 diminishes as the total monthly payment amount increases because the relationship between the monthly payments and the pay off time is an inverse relationship such that as the monthly payment increases the amount of time decreases at a decreasing rate.

If you want to pay off your credit card balance in three years, you must do the following:

1. Stop making purchases on the card.
2. Make a payment equal to the three-year payoff amount. Continue to make this payment each month even when future statements give a different amount.