

Name:

Date:

Period:

## Credit Cost (2.2)



### In this section we will answer:

- How is credit used?
- What are the typical cost of credit?
- How do I calculate the cost of using credit?

## The Lifetime laptop

Jesse found a great deal on a laptop. It regularly sells for \$650, but right now it's only \$500. Even better, he won't have to spend his savings on it because the ad says he can pay just \$10 a month for it.

His brother reads the fine print for the store's financing program to find the interest rate. He tells Jesse to enter "18" for the interest percentage rate and "10" for the monthly payment in an online loan payment calculator.

Jesse's shocked to see that it'll take him seven years and 10 months to pay off the laptop. He'll pay \$431 in interest charges ... bringing the total cost of the laptop to \$931.

Even worse, he realizes that the loan will last longer than the life of the laptop!

He thinks about buying the laptop with his savings instead of using the store loan. But he decides to skip the sale and keep saving his money to buy a truck.

Car dealers and stores often try to dazzle you with a low monthly payment so you'll overlook what's really important—the interest rate and total interest you will pay. After all, asking you to pay back just \$10 a month sounds much more appealing than asking you to pay 18 percent interest for more than seven years!

Regular Price of the Laptop with Cash
\$650
Total Price of "Discounted" Laptop with Interest
\$931

The good news is that lenders are required to tell you the **annual percentage rate (APR)** in writing before you sign on the dotted line. The APR is the interest rate calculated in a consistent way so it's easier to compare different borrowing options. It also may include fees and loan costs to give you a truer estimate of the total cost.

## More on Interest

Many loans and credit cards offer an **introductory APR** or "teaser" rate for a short period to tempt you to borrow. These cut your immediate borrowing costs—but always check when the introductory rate will expire and what your new APR will be afterward

another problem with interest rates is that they may climb, causing you to owe more money than you planned on.

**Fixed interest rates** stay the same for the life of the loan or account. You know that the monthly payment will stay the same, too.

**Adjustable or variable interest rates** change at specified times, such as every month or year. As the rate goes up or down, your payment amount will change, too.

**Pay your bills on time. One late payment could prompt a credit-card issuer to increase your interest rate to a higher APR.**

## Pick an Option

Jesse did the math on a laptop deal and realized the bargain wasn't a bargain at all. See if you can spot a bargain in the offers below. For each purchase, check the option that you think would be the best credit deal.

*Best Deal	Option	Purchase Price	Monthly Payments	Total Interest	Total Cost
<b>Purchase a Computer</b>					
<input type="checkbox"/>	Store Financing: 24 monthly payments at 11.9% APR	\$1,400	\$	\$	\$
<input type="checkbox"/>	Credit Card: 36 monthly payments at 15.9% APR	\$1,400	\$	\$	\$
<b>Purchase a Stereo System</b>					
<input type="checkbox"/>	Store Financing: 12 monthly payments at 13.5% APR	\$800	\$	\$	\$
<input type="checkbox"/>	Credit Card: 24 monthly payments at 18% APR	\$800	\$	\$	\$
<b>Purchase a Car</b>					
<input type="checkbox"/>	Car A: 7% APR for 60 months	\$20,000	\$	\$	\$
<input type="checkbox"/>	Car B: 3.9% APR for 30 months	\$23,000	\$	\$	\$
<b>Purchase a Big Screen TV</b>					
<input type="checkbox"/>	Store Financing: no payments for three months, but monthly interest charges start immediately at 10% APR; then six months of payments.	\$1,900	\$	\$	\$
<input type="checkbox"/>	Credit Union: 11% APR for 12 months	\$1,900	\$	\$	\$
<b>Purchase a Truck</b>					
<input type="checkbox"/>	Option A: \$1,500 rebate; 2.9% APR for 48 months	\$25,000	\$	\$	\$
<input type="checkbox"/>	Option B: \$0 rebate; 0.9% APR for 36 months	\$25,000	\$	\$	\$

### Activity 2.3 Simply Tell the total

The **simple interest formula** is a quick way to calculate interest. First you multiply the annual interest rate by the amount borrowed, and then the amount is multiplied by the number of years (or partial years) you take to repay what you borrowed.

Use the simple interest formula to calculate the interest and the total amount to be repaid in one lump sum for the purchases below.

#### Simple interest Rate Formula

**I = P x R x T** where

**I** = interest

**P** = Principal

**R** = interest Rate (decimal number)

**T** = Time (number of years)

Description	Principal (P)	Interest Rate (R)	Time in Years (T)	Interest (I)	Total Amount to be Repaid
Cash loan	\$100	40.0%	1/2 year	\$20 (100 x .4 x .5)	\$120 (\$100 + \$20)
Big-screen TV	\$700	7.0%	2 years	\$	\$
College loan	\$12,000	3.5%	15 years	\$	\$

It's likely that you will arrange to make manageable monthly payments to repay a loan rather than waiting to repay a larger lump sum when the amount is due. As you make a payment, a bit of the principal is paid. This actually changes the amount of interest you owe on the unpaid balance.

As you pay down the amount you borrowed, it isn't practical for you to recalculate what you owe after each loan payment is made. Lenders typically use the **amortization calculation formula** to figure out an average payment amount for each period, which is usually each month

This helps you plan to make the same payment each time even though the amount of interest owed changes as the balance of what you owe drops.

#### **Activity 2.4 What is the average payment?**

**Sample Amortization Chart:** Monthly payments when \$100 is borrowed at 40 percent annual interest to be repaid in six equal payments.

Monthly Payment	Payment Amount	Principal Repaid	Interest Paid
1	18.66	15.33	3.33
2	18.66	15.84	2.82
3	18.66	16.37	2.29
4	18.66	16.92	1.74
5	18.66	17.48	1.18
6	18.66	18.06	.60
<b>Totals</b>	<b>\$111.96</b>	<b>\$100.00</b>	<b>\$11.96</b>

Study the sample amortization chart above. How does the total interest paid compare with simple interest calculations in Activity 2.3?

Figure out the average monthly payments for two purchases made with loans using the amortization calculation formula.

Alternatives: Do your own amortization calculations using spreadsheet software\* or generate an amortization payment chart by using an online financial calculator.

#### Amortization Calculation Formula

$$A = P \frac{r(1+r)^n}{(1+r)^n - 1}$$

**A** = payment amount

**P** (aka **pv**) = principal (the present value of the loan)

**r** = interest rate, per period (decimal number)

**n** = total number of payments over which the loan will be repaid

Description	Present Value of Loan (pv)	Annual Interest Rate (APR)	Interest Rate Per Period (r)	Number of Payments (n)	Payment Amount (A)	Total Amount to be Repaid
Cash Loan	\$100	40.0%	40% / 12 = \$3.33%	6	\$18.66	\$18.66 x 6 = \$111.96
Big-Screen TV	\$700	7.0%	7% / 12 = \$	24	\$	\$
College Loan	\$12,000	3.5%	3.5% / 12 = \$	180	\$	\$

\*Microsoft Excel PMT Function: =PMT(r,n,-pv)

PMT Function example for cash loan: =PMT(.4/12,6,-100)

## DECIDE The Best Deal

Jesse wants to find out what the auto loan options are like if he makes a down payment with his savings. He has surfed a bunch of car websites to check prices and thinks that borrowing \$5,000 would enable him to buy a decent used truck that he won't be embarrassed to drive.

Now, he's going to use the DECIDE process to evaluate two potential loans.

Action Steps	Jesse's Results
<b>1. Define your goal.</b> What do you want to achieve?	<i>Find the best deal on a \$5,000 used-car loan.</i>
<b>2. Establish your criteria.</b> What are the features you absolutely must have? Which ones would you like to have?	<i>A low APR and low monthly payment are musts. I'd also like to pay it off before I start college.</i>
<b>3. Choose two to three good options.</b> Remove any options that don't meet your must-have criteria.	<i>1. Credit union loan with APR of 3.49% for 48 months</i>  <i>2. Bank loan with APR of 6.32% for 36 months</i>
<b>4. Identify the pros and cons.</b> Calculate what the total costs are for each option. If you have a lot of criteria and options, you may want to make a chart to quickly compare the features of each option.	<i>1. The monthly payments for the credit union loan are only \$111.76 and I'll pay less interest overall (\$364.37). I already have an account there, too, so it'll be easy to make payments. The downside is the four-year loan term, which means I'd have to make payments while I'm in college.</i>  <i>2. The bank's shorter loan term means I'll pay off the loan right before college. But the payments are \$152.86 and I'll pay more interest, (\$502.96). There's a \$50 application fee, too.</i>
<b>5. Decide what's best.</b> Which option best matches your criteria?	<i>Overall, I'll save more money with the credit union loan and I can always try to pay it off earlier without any penalty.</i>
<b>6. Evaluate the results.</b> Afterward, note what you do and don't like about your choice so you can add that to your criteria for next time.	<i>I'll do this after I get my truck!</i>

Jesse is smart to go loan shopping before setting foot on the car lot. He might find lower interest rates elsewhere. This is especially true because car dealers will sometimes make loans with higher rates to make up for reducing the purchase price on the car or agreeing to a trade-in offer.

Also, be wary of ads promising zero percent or other unbelievably low interest rates. These loans typically come with strings attached—such as having to buy specific cars or models, make a large down payment, or have a near-perfect credit record.

### **DECIDE The Best Deal for you**

Pick a situation where you or your family currently use or expect to use credit in the near future. For example, this might be a car loan, school loan, apartment rental, or cash loan.

Gather information from two to three different businesses that provide credit for the situation you chose. Use the **DECIDE** process to select the best option for your (or your family's) criteria.

<b>Define your goal. What do you want to achieve?</b>			
<b>Establish your criteria. What are the features you absolutely must have? Which ones would you like to have?</b>			
<b>Choose two to three good options. Remove any options that don't meet your must have criteria.</b>			
Option	A	B	C



Identify the pros and cons. Calculate what the total costs are for each option. If you have a lot of criteria and options, you may want to make a chart to quickly compare the features of each option.

Options	A	B	C
Pros			
Cons			

**Decide what's best.** Which option best matches your criteria?

**Evaluate the results.** Afterward, note what you do and don't like about your choice so you can add that to your criteria for next time.