

Calculate Shopping With Interest Answers Key



CALCULATE: Shopping with Interest

This activity will illustrate how even smaller purchases cost more when you purchase on a credit card and do not pay the balance in full each month. For this activity, we will use the [credit card calculator](#) from [bankrate.com](#); open it in another window. We also make these assumptions:

- Your credit card's interest rate (APR) is 19.9%.
- The minimum payment due each month is 3% of your **starting balance**.

Part I: Practice with an Example

1. Suppose you have a credit card bill of \$1,275 for the month of October. If you pay the full balance before your bill is due, how much will you pay in interest?

If you pay the balance before your bill is due, you will not have any interest charges because there are no interest charges if the balance is paid by the due date.

2. With your bill paid off and starting back at \$0, the latest video game comes out and costs \$60. You put it on your credit card and can't afford to pay the whole bill all at once, so you make the minimum payment each month.

- a. How much is that minimum payment?

The minimum payment I have to pay is \$1.80 per month.

- b. Use the credit card calculator to determine how much total interest you'll pay on this debt.

I have to pay 28 dollars in interest.

- c. When you include the purchase price **and** the interest, how much does the video game cost you in total?

It will cost 88 dollars in total.

3. Assume your balance is back at \$0. You desperately want a TV for your bedroom, but you don't have any money saved. You put the \$229 TV on your credit card and make the minimum monthly payment each month.

- a. How much is that minimum payment?

My minimum payment is 6.87 dollars per month.

- b. Use the credit card calculator to determine how much total interest you'll pay on this debt.

The total interest paid is 107 dollars

Calculate shopping with interest answers key is a crucial topic for anyone looking to make informed purchasing decisions, especially when financing options come into play. Whether you are buying a new gadget, furniture, or even a car, understanding how interest affects the total cost can save you a significant amount of money. This article will guide you through the process of calculating shopping costs with interest, the different types of interest, and provide practical examples and tips to help you make the best financial choices.

Understanding Interest in Shopping

Interest is the cost of borrowing money, typically expressed as a percentage of the principal amount

borrowed. When making a purchase on credit or through a loan, you will often encounter two main types of interest: simple interest and compound interest.

Simple Interest

Simple interest is calculated only on the principal amount for the entire duration of the loan. The formula for calculating simple interest is:

$$\text{Simple Interest} = P \times r \times t$$

Where:

- P = Principal amount (the initial sum of money)
- r = Annual interest rate (in decimal form)
- t = Time (in years)

Compound Interest

Compound interest, on the other hand, is calculated on the principal amount and also on the interest that has been added to it over time. The formula for compound interest is:

$$A = P \left(1 + \frac{r}{n}\right)^{nt}$$

Where:

- A = The amount of money accumulated after n years, including interest.
- P = Principal amount (the initial sum of money)
- r = Annual interest rate (in decimal)
- n = Number of times that interest is compounded per year
- t = Time (in years)

Calculating Total Cost of Purchases with Interest

When you make a purchase using credit, it's essential to calculate the total cost, including interest. Here's how to do it step by step:

Step 1: Determine the Principal Amount

Start by identifying the price of the item you intend to purchase. This value is your principal amount.

Step 2: Identify the Interest Rate and Type

Check the interest rate being offered by the lender or credit provider. Make sure to note whether it is simple or compound interest.

Step 3: Determine the Loan Term

Decide how long you will take to repay the loan. This will be your time factor in years.

Step 4: Calculate Interest

Use the appropriate formula to calculate interest, depending on whether it's simple or compound.

- For Simple Interest:
- Example: You buy a laptop for \$1,000 with a simple interest rate of 5% over 2 years.

$$\text{Interest} = 1000 \times 0.05 \times 2 = 100$$

$$\text{Total cost} = \text{Principal} + \text{Interest} = \$1,000 + \$100 = \$1,100.$$

- For Compound Interest:
- Example: You buy the same laptop for \$1,000 with a compound interest rate of 5%, compounded annually for 2 years.

$$A = 1000 \left(1 + \frac{0.05}{1}\right)^{1 \times 2} = 1000 \times (1.05)^2 \approx 1102.50$$

$$\text{Total cost} = \$1,102.50.$$

Examples of Calculating Shopping with Interest

Let's consider a couple of practical examples to clarify the calculations further.

Example 1: Buying a Television

Suppose you want to buy a television priced at \$800. The store offers a financing option at a simple interest rate of 6% for 3 years.

- Principal (P): \$800

- Interest Rate (r): 6% or 0.06
- Time (t): 3 years

Calculating interest:

$$\text{Interest} = 800 \times 0.06 \times 3 = 144$$

Total cost = \$800 + \$144 = \$944.

Example 2: Purchasing a Car

Imagine you are purchasing a car for \$20,000 with a compound interest rate of 4% compounded monthly for 5 years.

- Principal (P): \$20,000
- Interest Rate (r): 4% or 0.04
- Compounding Frequency (n): 12 (monthly)
- Time (t): 5 years

Calculating the total amount:

$$A = 20000 \left(1 + \frac{0.04}{12}\right)^{12 \times 5} = 20000 \left(1 + 0.003333\right)^{60} \approx 20000 \times 1.221386 = 24427.72$$

Total cost = \$24,427.72.

Tips for Calculating Shopping Costs with Interest

To ensure you are making wise financial decisions, consider the following tips:

- **Shop Around:** Always compare interest rates from different lenders or stores before making a purchase.
- **Understand the Terms:** Read the fine print regarding interest calculations, especially concerning compound interest.
- **Calculate Total Costs:** Always calculate the total cost of an item, including interest, before deciding to purchase.
- **Consider Your Budget:** Make sure the total cost fits within your budget to avoid financial strain.

- **Pay Off Early:** If possible, pay off loans early to minimize the amount of interest paid.

Conclusion

Understanding how to **calculate shopping with interest answers key** can significantly impact your financial health. By familiarizing yourself with the different types of interest, how to calculate total costs, and being aware of your budget, you can make informed purchasing decisions that benefit you in the long run. Always remember to shop wisely and consider all the associated costs before making a final decision. With these strategies in hand, you can navigate the world of financing with confidence and clarity.

Frequently Asked Questions

What is the formula to calculate the total cost of shopping including interest?

The formula is $\text{Total Cost} = \text{Principal Amount} + (\text{Principal Amount} \times \text{Interest Rate} \times \text{Time})$.

How do you determine the interest rate applied to shopping purchases?

The interest rate can typically be found in the terms of service of the payment provider or financial institution offering the shopping credit.

If I spend \$200 on shopping with an interest rate of 5% for 2 months, how much interest will I pay?

$\text{Interest} = \text{Principal Amount} \times \text{Interest Rate} \times \text{Time} = \$200 \times 0.05 \times (2/12) = \1.67 .

What is the impact of compounding interest on shopping calculations?

Compounding interest can increase the total cost significantly over time, as interest is calculated on both the principal and the accumulated interest from previous periods.

How can I avoid paying interest on my shopping purchases?

You can avoid paying interest by paying off the entire balance within the grace period or by using interest-free financing options.

What tools can help me calculate shopping costs with

interest?

Online calculators, budgeting apps, and financial spreadsheets can help you calculate total shopping costs including interest.

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Calculate Shopping With Interest Answers Key

Online Calculator

The original calculator was invented in the 17th century by a Frenchman called Blaise Pascal! He was just 18 years old, and wanted to help his father do his tax calculations.

Full Screen Calculator - Online Calculator

This online calculator can handle a range of functions, including basic arithmetic, percentages, fractions, and more. If you need to perform more advanced mathematical calculations, try one ...

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Scientific Calculator - Online Scientific Calculator

Plus, our calculator is available online for free, with no need for additional software or hardware. Try it out today and see how it can simplify your mathematical calculations!

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