

David Bought A Motorcycle. It Cost \$470 Plus An Additional 10% Sales Tax.What Was The Total Cost?

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Introduction

When purchasing a significant item such as a motorcycle, understanding the total cost involves more than just the sticker price. Additional charges like sales tax can substantially increase the final amount paid. In this article, we will explore the process of calculating the total cost David paid for his motorcycle, which was priced at \$470, with an added 10% sales tax. By walking through the steps involved, we aim to clarify how sales tax impacts the purchase and demonstrate how to accurately determine the total amount paid.

Understanding the Basic Components of the Purchase

The Price of the Motorcycle

The initial price of the motorcycle is given as \$470. This amount represents the base price before any additional charges.

The Concept of Sales Tax

Sales tax is a percentage added to the purchase price by the government, which is collected from the buyer at the point of sale. It is a common practice across many regions to fund public services and infrastructure.

The Percentage of Sales Tax

In this case, the sales tax rate is 10%, meaning the buyer must pay an extra 10% of the motorcycle's price.

Calculating the Sales Tax

Step 1: Convert Percentage to Decimal

To perform calculations, convert the sales tax percentage into a decimal:

$$- 10\% = 10/100 = 0.10$$

Step 2: Calculate the Amount of Sales Tax

Multiply the base price by the sales tax rate:

$$- \text{Sales Tax} = \$470 \times 0.10 = \$47$$

This amount represents the additional cost that must be added to the original price.

Determining the Total Cost

Step 1: Add the Sales Tax to the Original Price

Total Cost = Base Price + Sales Tax

$$- \text{Total Cost} = \$470 + \$47 = \$517$$

Step 2: Final Amount Paid

The total amount David paid for his motorcycle, including sales tax, is \$517.

Summary of the Calculation Process

To summarize:

1. Identify the base price of the motorcycle: **\$470**
2. Convert the sales tax percentage into decimal form: **0.10**
3. Calculate the sales tax: **$\$470 \times 0.10 = \47**
4. Add the sales tax to the base price to find total cost: **$\$470 + \$47 = \$517$**

Additional Considerations

Regional Variations in Sales Tax

It's important to note that sales tax rates vary across different regions and countries. Some areas might have higher or lower rates, and some may include additional taxes or fees.

Other Possible Costs

Besides sales tax, there could be other costs associated with purchasing a motorcycle, such as:

- Registration fees
- Dealer fees
- Insurance costs
- License plates

However, for the scope of this calculation, we focus solely on the sales tax.

Practical Applications of the Calculation

Understanding how to compute total purchase costs is vital for consumers to budget properly. Whether buying a motorcycle, a car, or any large item, knowing how sales tax affects the final price helps avoid surprises at checkout.

Example Scenarios

- Scenario 1: If the motorcycle's price was higher, say \$1,000, the tax would be \$100, and the total would be \$1,100.
- Scenario 2: If the sales tax rate increased to 15%, then for a \$470 motorcycle:
 - Sales Tax = $\$470 \times 0.15 = \70.50
 - Total Cost = $\$470 + \$70.50 = \$540.50$

These examples show how even small changes in tax rates or base prices can significantly impact the total cost.

Conclusion

Calculating the total cost of a purchase involving sales tax is a straightforward but essential process. In David's case, with a motorcycle priced at \$470 and a 10% sales tax rate, the total amount paid came to \$517. By understanding the steps involved—converting the percentage to a decimal, calculating the tax, and adding it to the original price—buyers can confidently determine the full expense before completing a transaction. This knowledge not only promotes better financial planning but also fosters transparency and informed decision-making when making large purchases.

Frequently Asked Questions

What was the original price of David's motorcycle?

The original price of the motorcycle was \$470.

How is the sales tax calculated for the motorcycle?

The sales tax is 10% of the original price, so it is calculated as 10% of \$470.

What is the amount of sales tax on the motorcycle?

The sales tax is \$47, which is 10% of \$470.

How do you find the total cost of the motorcycle including sales tax?

Add the original price (\$470) to the sales tax (\$47) to find the total cost.

What is the total cost of the motorcycle including sales tax?

The total cost is \$517, which is \$470 plus \$47.

Why is it important to include sales tax when calculating the total cost?

Sales tax increases the overall amount paid, so including it provides an accurate total cost.

If the sales tax rate was increased to 12%, what would be the new total cost?

The new sales tax would be 12% of \$470, which is \$56.40, making the total cost \$526.40.

Can the total cost be calculated using a formula? If so, what is it?

Yes, the total cost = original price + (sales tax rate × original price). In this case, total cost = $\$470 + (0.10 \times \$470) = \$517$.

Additional Resources

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When contemplating the purchase of a motorcycle, especially with additional costs like sales tax, it's important to understand the detailed financial breakdown to determine the

total expenditure accurately. This scenario involving David's motorcycle purchase presents a common situation many buyers face, where the listed price isn't the final amount paid. In this comprehensive review, we will delve into the core aspects of calculating total costs, understanding sales tax implications, and exploring how such calculations influence overall budget planning.

Understanding the Basic Purchase Price of the Motorcycle

Before considering any additional costs, it's essential to identify the base price of the motorcycle. In this case:

- Listed Price of Motorcycle: \$470

This figure represents the initial cost set by the seller, which is the starting point for further calculations.

The Role of Sales Tax in Vehicle Purchases

Sales tax is a mandatory governmental levy imposed on the sale of goods and services, including vehicles like motorcycles. The rate varies by location but is typically expressed as a percentage of the purchase price.

In David's scenario:

- Sales Tax Rate: 10%

Sales tax serves several purposes:

- Funding public infrastructure and services
- Contributing to local and state government budgets
- Ensuring compliance with regional tax laws

Understanding how sales tax is calculated and applied is crucial for accurately determining the total cost.

Calculating the Sales Tax Amount

To compute the sales tax, follow these steps:

1. Identify the base price: \$470
2. Determine the sales tax rate: 10% (which is 0.10 in decimal form)
3. Calculate the tax: Multiply the base price by the tax rate:

$$\text{Sales Tax} = \text{Price} \times \text{Tax Rate}$$

$$\text{Sales Tax} = 470 \times 0.10 = \$47$$

This means David will pay an additional \$47 in sales tax on top of the motorcycle's purchase price.

Calculating the Total Cost

The total cost is the sum of the base price and the sales tax:

$$\text{Total Cost} = \text{Price} + \text{Sales Tax}$$

Plugging in the numbers:

$$\text{Total Cost} = 470 + 47 = \$517$$

Thus, David's total expenditure for the motorcycle, including sales tax, is \$517.

Implications of the Total Cost Calculation

Understanding the total cost has multiple practical applications:

- Budget Planning: Ensuring that the buyer has sufficient funds to cover the entire expense.
- Financial Forecasting: Anticipating future expenses such as registration, insurance, and maintenance.
- Price Comparisons: Comparing similar models across different sellers or regions with varying tax rates.

Additional Considerations in Motorcycle Purchases

While the calculation appears straightforward in this scenario, real-world purchases often involve other costs:

1. Registration and Title Fees

- Most jurisdictions require registration and title transfer fees, which can range from \$50 to \$200 or more.
- These costs are typically paid at the point of sale or shortly thereafter.

2. Insurance Premiums

- Motorcycle insurance varies depending on the rider's age, experience, location, and coverage levels.
- It can significantly impact the overall cost of ownership.

3. Optional Accessories and Add-ons

- Helmets, riding gear, and accessories can add to the initial purchase cost.
- Extended warranties or service plans may also be included.

4. Loan or Financing Charges

- If David financed the purchase, interest rates and loan terms would influence the total amount paid over time.

5. Regional Variations in Tax Rates

- Different states or countries may have different sales tax rates, affecting the total cost.
- Some regions also impose additional taxes or fees on vehicle purchases.

Tax Calculation Methods: Inclusive vs. Exclusive Pricing

In some regions, prices are displayed inclusive of taxes, whereas in others, the displayed price is exclusive.

- Exclusive Pricing: The listed price does not include tax; tax is added at checkout.
- Inclusive Pricing: The listed price includes tax, so the total is known upfront.

In David's case, the price of \$470 appears to be exclusive of tax since an additional 10% tax is applied afterward.

Practical Tips for Buyers Regarding Sales Tax

- Always verify the local sales tax rate before making a purchase.
- Calculate the total cost upfront to avoid surprises at checkout.
- Consider the impact of taxes on your budget and plan accordingly.
- Research potential additional fees such as registration, licensing, and insurance.

Conclusion: Summarizing the Total Cost Calculation

To wrap up, the process of calculating the total cost of David's motorcycle purchase involves:

- Starting with the base price: \$470
- Applying the sales tax: 10% of \$470 = \$47
- Adding the sales tax to the base price: $\$470 + \$47 = \$517$

This straightforward calculation demonstrates the importance of understanding tax rates and their impact on the final purchase price. For prospective buyers, being aware of these costs ensures better financial planning, avoids surprises, and facilitates informed decision-making.

Final Thoughts

While the example here is simplified, it mirrors real-world scenarios where buyers need to be diligent about additional costs beyond the sticker price. Whether purchasing a motorcycle, a car, or other taxable goods, understanding the mechanics of sales tax calculation is essential. For David, and indeed for anyone in the market for a vehicle, the key takeaway is that the listed price is just part of the overall expense. Applying a clear, step-by-step approach to calculating total costs empowers consumers to budget effectively and make smarter purchasing decisions.

In summary:

- Base Price: \$470
- Sales Tax (10%): \$47
- Total Cost: \$517

This detailed breakdown offers clarity and precision, ensuring that buyers like David are

fully aware of their financial commitments before completing their purchase.

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