Anne Pays Cash For A Tv. The Store Owner Gives Her A 10% Discount. She Pays $702. How Much Was The Price

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In today’s fast-paced retail environment, understanding how discounts affect the final purchase price is essential for both consumers and business owners. Imagine a scenario where a customer, Anne, is interested in buying a new television. She opts to pay in cash, and the store owner offers her a 10% discount as an incentive. After applying the discount, Anne pays a total of $702. But how much was the original price of the TV before the discount was applied? This question not only challenges our basic math skills but also highlights the importance of understanding percentage discounts, which are common in sales, promotions, and negotiations.

In this comprehensive guide, we will explore the step-by-step process to determine the original price of the TV based on the final amount paid after a discount. We will also delve into related concepts such as percentage calculations, the importance of discounts in retail, and practical tips for consumers when shopping with discounts. Whether you’re a student, a shopper, or a business owner, mastering these calculations can help you make more informed decisions and avoid overpaying.

Understanding the Scenario

Before diving into the calculations, it’s crucial to understand the basic elements of this scenario:

- Anne is purchasing a television.
- She opts to pay with cash.
- The store owner offers her a 10% discount on the original price.
- After applying the discount, Anne pays $702.

The question posed is: What was the original price of the TV before the discount was applied?

To answer this, we need to understand the relationship between the original price, the discount, and the final price paid.

Key Concepts: Discounts and Price Calculations

What is a Discount?

A discount is a reduction in the price of a product or service, expressed as a percentage of the original price. Discounts are often used to attract customers, clear inventory, or promote sales.

For example:

- A 10% discount on a TV priced at $1000 reduces the price by $100, making the final price $900.

How to Calculate the Discounted Price

The general formula for calculating the discounted price is:

$$
\text{Discounted Price} = \text{Original Price} \times (1 - \text{Discount Rate})
$$

Where:

- The Discount Rate is expressed as a decimal (e.g., 10% = 0.10).

In the case of Anne’s purchase:

- The Discount Rate = 10% = 0.10
- The Discounted Price = $702 (the amount Anne paid)

Our goal: Find the Original Price.

Step-by-Step Calculation of the Original Price

Given:

$$
\text{Discounted Price} = \text{Original Price} \times (1 - \text{Discount Rate})
$$

We know:

$$
702 = \text{Original Price} \times (1 - 0.10)
$$

Simplify:

$$
702 = \text{Original Price} \times 0.90
$$

To find the Original Price:

$$
\text{Original Price} = \frac{702}{0.90}
$$

Calculating:

$$
\text{Original Price} = 780
$$

Therefore, the original price of the TV was $780.

Confirming the Calculation

To verify:

- 10% of $780 = $78
- Discounted price = $780 - $78 = $702

This confirms that the calculation is correct.

Additional Insights and Practical Applications

Understanding the Impact of Discounts

Knowing how discounts affect the purchase price is vital for consumers to avoid overpaying and for retailers to set effective promotional strategies. For example, a 10% discount on an expensive item results in a significant savings, but the actual savings depend on the original price.

Key takeaways:

- Always convert percentages to decimals when calculating.
- Use the formula: $\text{Original Price} = \frac{\text{Final Price}}{1 - \text{Discount Rate}}$.
- Be cautious of compounded discounts or multiple promotions that might change the final price.

Practical Tips for Consumers

- Always ask for the original price before discounts.
- Calculate the discount amount to understand how much you're saving.
- Use online calculators or spreadsheets for quick computations.
- Keep track of discounts during sales to compare prices effectively.

Tips for Store Owners and Retailers

- Clearly communicate discount rates and final prices.
- Use percentage discounts strategically to attract customers without eroding profit margins.
- Offer discounts as a percentage rather than fixed amounts to keep prices flexible.
- Track the impact of discounts on sales volume and profitability.

Summary: How Much Was The Price of The TV?

To summarize:

- Anne paid $702 after a 10% discount.
- The original price of the TV was $780.

This calculation demonstrates the importance of understanding percentage discounts and their impact on retail pricing.

Additional Examples and Practice Problems

To reinforce understanding, here are some practice problems:

1. If a store offers a 15% discount on a laptop and the discounted price is $850, what was the original price?

2. A customer pays $540 after a 20% discount. What was the original price?
3. A smartphone is marked at $600 after a 25% discount. Find its original price.

Answers:

1. Original Price = $\frac{850}{1 - 0.15} = \frac{850}{0.85} = \$1000$
2. Original Price = $\frac{540}{0.80} = \$675$
3. Original Price = $\frac{600}{0.75} = \$800$

Conclusion

Understanding how discounts work is crucial for making informed purchasing decisions. In the scenario of Anne buying a TV, recognizing that her final payment of $702 reflects a 10% discount allowed us to determine that the original price was $780. Whether you're a consumer evaluating deals or a retailer setting promotional offers, mastering these calculations can enhance your financial literacy and strategic decision-making. Always remember to convert percentage discounts into decimals and use the formula for calculating the original price to navigate sales confidently.

By mastering these concepts, you can ensure you're always aware of the true value of deals and make smarter shopping choices that save you money.

Frequently Asked Questions

How do you find the original price of the TV when Anne pays $702 after a 10% discount?

Divide the amount paid by 0.9 (since 10% discount means paying 90% of the original price): 702 ÷ 0.9 = $780.

What is the formula to calculate the original price before a discount?

Original Price = Price Paid ÷ (1 - Discount Rate).

If Anne received a 10% discount and paid $702, what was the original price of the TV?

The original price was $780.

How would the calculation change if the discount was 20% instead of 10%?

You would divide the amount paid by 0.8 (since 20% discount means paying 80% of the original price): 702 ÷ 0.8 = $877.50.

Why does dividing the amount paid by 0.9 give the original price after a 10% discount?

Because paying $702 at a 10% discount means paying 90% of the original price, so dividing by 0.9 reverses the discount to find the full original price.

Can you verify the original price if the store gave a 10% discount and Anne paid $702?

Yes, multiply the price paid by 1.1: $702 × 1.1 = $772.20, which confirms the original price was $780 (since the calculation should be $702 ÷ 0.9). The correct original price is $780.

Additional Resources

Anne Pays Cash For A Tv. The Store Owner Gives Her A 10% Discount. She Pays $702. How Much Was The Price?

Understanding the true cost of a purchase can often be more complex than it appears at first glance, especially when discounts and cash payments are involved. In this case, Anne's transaction involving a television, a store's discount policy, and the final amount paid offers an intriguing opportunity to explore basic principles of algebra, percentage calculations, and real-world shopping scenarios. This article provides a comprehensive analysis of the problem, breaking down each component to arrive at the original price of the TV.

Introduction: The Context of the Purchase

When shopping for electronics such as a television, consumers often encounter various pricing strategies—standard prices, discounts, promotional offers, and payment methods—each affecting the final amount paid. In Anne’s case, she paid cash for a TV, and the store owner provided her with a 10% discount. The final amount Anne paid was $702.

This scenario raises several questions:

- What was the original listed price of the TV before any discounts?
- How does the discount influence the final payment?
- What role does paying in cash play—if any—in the pricing structure?
- How can we mathematically determine the original price based on the final amount paid?

To answer these questions, we need to understand the relationship between the original price, discounts, and payments.

Understanding Key Concepts: Price, Discount, and Payment

1. Original Price (List Price)

This is the price set by the retailer before applying any discounts or adjustments. It represents the baseline value of the product.

2. Discount Percentage

A discount is a reduction applied to the original price, usually expressed as a percentage. In Anne’s case, the store offers a 10% discount.

3. Final Price After Discount

This is the price after subtracting the discount from the original price. It is the amount the customer is expected to pay before considering other factors such as payment mode.

4. Payment Method and Its Influence

While some stores may offer discounts for cash payments, in this scenario, the key focus is on the discount percentage and the final amount paid. The mention of cash may be a detail that influences the discount, but for calculation purposes, our focus remains on the percentage discount and total paid.

Step-by-Step Calculation Process

To determine the original price of the TV, we need to work backwards from the final amount paid, considering the 10% discount.

1. Understanding the Relationship Between Price, Discount, and Final Payment

Let’s define:

- P: The original price of the TV.
- d: Discount rate (10% or 0.10).
- F: Final price paid after discount.

Since the store provides a 10% discount:
$$
F = P - (d \times P) = P \times (1 - d)
$$

Given that Anne pays $702:
$$
702 = P \times (1 - 0.10) = P \times 0.90
$$

2. Solving for the Original Price

Rearranging the formula:
$$
P = \frac{F}{0.90}
$$
Plugging in the known final payment:
$$
P = \frac{702}{0.90} = 780
$$

Therefore, the original price of the TV before any discount was $780.

Additional Considerations and Clarifications

While the algebra provides a straightforward calculation, several factors warrant further discussion:

1. Is the Discount Applied Before or After Cash Payment?

In most retail scenarios, discounts are applied to the listed price, and the final amount reflects that discount regardless of the payment method—cash or card. Unless specified otherwise, it's reasonable to assume the discount is applied before payment, and the cash payment is simply the method of settlement.

2. Could There Be Additional Fees or Taxes?

Tax considerations often influence the final amount paid. If taxes were included, the calculation would be more complex, involving adding tax to the discounted price. Since the

problem states explicitly that Anne paid $702 after a 10% discount, and no mention of additional taxes exists, we proceed under the assumption that the $702 amount already accounts for all necessary adjustments.

3. The Significance of Cash Payment

Some stores offer discounts for cash payments to avoid credit card processing fees. If that was the case here, the discount might be linked to her paying cash. However, since the problem explicitly mentions the store owner gave her a 10% discount, and the amount she paid is known, the calculation remains unaffected unless additional details specify a different discount structure.

Implications of the Calculation

The calculation reveals that the original listed price of the TV was $780 before applying the 10% discount. This insight has practical implications:

- For Consumers: Understanding the original price helps assess the value of the discount offered.
- For Retailers: Offering a 10% discount on a $780 TV effectively reduces the price by $78, making the product more attractive and possibly stimulating sales.
- For Economists and Marketers: Analyzing such discounts helps in pricing strategies, inventory management, and sales forecasting.

Broader Context: How Discounts Affect Pricing Strategies

The case of Anne paying $702 after a 10% discount exemplifies common retail practices. Discounts serve multiple purposes:

- Attracting Customers: Lower prices can entice buyers to make a purchase.
- Clearing Inventory: Discounting helps move stock that might otherwise remain unsold.
- Competitive Pricing: Retailers adjust prices to stay competitive in a crowded market.

Understanding the mathematics behind discounts enables consumers to make informed purchasing decisions and helps retailers optimize their pricing strategies.

Conclusion: Final Insights and Takeaways

The scenario of Anne paying cash for a TV with a 10% discount and ending up paying $702 illustrates a fundamental principle in retail pricing: discounts directly influence the final price paid by consumers. By applying basic algebra, we determined that the original price of the TV was $780 before the discount was applied.

This analysis underscores the importance of understanding percentages and algebraic relationships in everyday financial decisions. Whether you are a shopper seeking the best deals or a retailer designing pricing policies, grasping these concepts enhances financial literacy and strategic decision-making.

In summary:

- The original price of the TV was $780.
- The 10% discount amounted to $78.
- The final amount paid by Anne was $702.
- Such calculations reinforce the value of understanding percentage-based discounts in real-world contexts.

By mastering these principles, consumers can better evaluate discounts and make more informed purchasing choices, and retailers can craft attractive offers that benefit both parties.

End of Article

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