

A Tea Set Was Bought For Rs 336 After Getting A Discount Of 16 % On Its Marked Price. Find The Marked

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When it comes to shopping and calculating prices, understanding the relationship between marked price, discount, and selling price is essential. Whether you are a student preparing for exams, a shopkeeper setting prices, or a buyer trying to find the original cost of an item, mastering these concepts helps in making informed decisions. In this article, we will explore a common problem involving discounts and marked prices—specifically, how to find the marked price of a tea set bought at a discount. We will break down the problem step by step, explain key concepts, and illustrate the process with examples to ensure clarity.

Understanding the Basics: Marked Price, Discount, and Selling Price

Before delving into the problem, it's important to understand the fundamental terms involved:

Marked Price (MP)

- The original price printed on the product.
- Also called the listed price or label price.
- The price before any discounts are applied.

Discount

- A reduction percentage or amount offered on the marked price.
- Usually expressed as a percentage.
- Encourages buyers to purchase by reducing the final price.

Selling Price (SP) or Sale Price

- The actual price paid by the buyer after discount.
- Also called the final price.

Relating Marked Price, Discount, and Selling Price

The relationship between these terms can be expressed with the formula:

$$\text{Selling Price} = \text{Marked Price} - \text{Discount}$$

or, when discount is given as a percentage:

$$\text{Selling Price} = \text{Marked Price} \times \left(1 - \frac{\text{Discount \%}}{100}\right)$$

Rearranged to find the marked price:

$$\text{Marked Price} = \frac{\text{Selling Price}}{1 - \frac{\text{Discount \%}}{100}}$$

This formula is crucial when you know the final price after discount and the discount percentage, and need to find the original marked price.

Problem Breakdown: The Tea Set Purchase Scenario

Let's analyze the problem statement:

> A Tea Set Was Bought For Rs 336 After Getting A Discount Of 16 % On Its Marked Price. Find The Marked Price.

Given:

- Final purchase price (Selling Price, SP) = Rs 336
- Discount percentage = 16%

Objective:

- Find the Marked Price (MP)

Step-by-Step Solution Approach

Step 1: Understand what is given

- Selling price after discount = Rs 336

- Discount percentage = 16%

Step 2: Recall the formula relating these quantities

$$\text{Marked Price} = \frac{\text{Selling Price}}{1 - \frac{\text{Discount \%}}{100}}$$

Step 3: Substitute known values into the formula

$$\text{Marked Price} = \frac{336}{1 - \frac{16}{100}} = \frac{336}{1 - 0.16} = \frac{336}{0.84}$$

Step 4: Calculate the marked price

$$\text{Marked Price} = \frac{336}{0.84}$$

Performing the division:

$$\text{Marked Price} = 400$$

Answer: The marked price of the tea set is Rs 400

Additional Concepts and Related Problems

To deepen understanding, let's explore similar problems and concepts related to discounts and marked prices.

1. How to find the discount amount?

- Once the marked price and discount percentage are known, the discount amount is:

$$\text{Discount Amount} = \text{Marked Price} \times \frac{\text{Discount \%}}{100}$$

- For our problem:

$$\text{Discount} = 400 \times \frac{16}{100} = 400 \times 0.16 = \text{Rs } 64$$

- The customer saved Rs 64 on the tea set.

2. Calculating the selling price from marked price and

discount

- If the marked price and discount percentage are known:

$$\text{Selling Price} = \text{Marked Price} - \text{Discount}$$

or

$$\text{Selling Price} = \text{Marked Price} \times \left(1 - \frac{\text{Discount \%}}{100}\right)$$

3. Working backward to find the marked price with different discount percentages

Suppose a different scenario:

- Selling price = Rs 420
- Discount percentage = 20%
- Find the marked price.

Using the formula:

$$\text{Marked Price} = \frac{420}{1 - \frac{20}{100}} = \frac{420}{0.8} = \text{Rs } 525$$

Practical Applications of Discount Calculations

Knowing how to calculate marked prices, discounts, and final prices is useful in various real-world contexts:

- Shopping: Comparing prices during sales, understanding how much you're saving.
- Business: Setting appropriate marked prices to achieve desired profit margins.
- Negotiations: Calculating acceptable discounts to meet sales targets.
- Budgeting: Estimating costs after discounts to plan expenses.

Tips for Solving Discount Problems Effectively

- Always clearly identify what is given and what you need to find.
- Remember the key formulas and their relationships.
- Convert percentages to decimals for calculations.
- Use proportion and algebra techniques for complex problems.
- Practice with different scenarios to build confidence.

Practice Questions for Mastery

1. A mobile phone is marked at Rs 15,000. If a customer gets a 10% discount, what is the final price?
2. An appliance costs Rs 800 after a 20% discount. What was its marked price?
3. If a jacket is sold for Rs 1200 after a 25% discount, what was its marked price?
4. A shopkeeper wants to sell an item at Rs 560 after giving a 12% discount. What should be the marked price?

Answers:

1. Rs 13,500
2. Rs 1000
3. Rs 1600
4. Rs 636.36 (approx)

Conclusion

Understanding how to calculate the marked price from the sale price and discount percentage is a vital skill in everyday financial transactions. In the case of the tea set bought for Rs 336 after a 16% discount, we found the marked price to be Rs 400. Mastery of these calculations enables better shopping decisions, helps in budgeting, and enhances financial literacy. Practice regularly with different problems to become proficient in handling discounts and pricing strategies efficiently.

Remember: The key formula to keep in mind is:

$$\boxed{\text{Marked Price} = \frac{\text{Selling Price}}{1 - \frac{\text{Discount \%}}{100}}}$$

Use this formula whenever you need to find the original price before discounts, and you'll be able to solve related problems with confidence!

Frequently Asked Questions

What is the marked price of the tea set if it was purchased for Rs 336 after a 16% discount?

The marked price of the tea set is Rs 400.

How do you calculate the marked price when a discount is given and the final price is known?

You divide the selling price by $(1 - \text{discount rate})$. For example, $\text{Marked Price} = \text{Rs } 336 / (1 - 0.16) = \text{Rs } 400$.

If a tea set's marked price is Rs 400 and a discount of 16% is applied, what is the discount amount?

The discount amount is Rs 64, calculated as 16% of Rs 400.

Why is understanding the marked price important when shopping with discounts?

Knowing the marked price helps determine the actual value of discounts and the true cost of the product, aiding in better purchasing decisions.

What is the formula to find the marked price based on the discount percentage and final price?

$\text{Marked Price} = \text{Final Price} / (1 - \text{Discount Percentage})$. For this example, $\text{Rs } 336 / (1 - 0.16) = \text{Rs } 400$.

Additional Resources

A Tea Set Was Bought For Rs 336 After Getting A Discount Of 16% On Its Marked Price. Find The Marked Price

Introduction: Deciphering the Discounted Purchase

In the realm of retail transactions, discounts play a pivotal role in attracting customers and influencing purchasing decisions. They serve as a strategic tool for sellers to clear inventory, boost sales, and create a perception of value. For consumers, understanding the mathematics behind discounts is essential to make informed choices and to verify the fairness of the advertised deals.

The problem at hand involves a tea set bought for Rs 336 after availing a 16% discount on its marked price. The critical question is: What was the marked price of the tea set?

This seemingly straightforward question involves an understanding of percentage discounts, algebraic manipulation, and practical application of basic arithmetic. This article explores the problem comprehensively, providing an in-depth analysis of the underlying principles, step-by-step calculations, and real-world implications.

Understanding the Core Concepts: Marked Price and Discount

Before delving into the calculations, it is essential to clarify key terminologies:

- Marked Price (MP): The original price set by the seller, also known as the listed or labeled price.
- Discount: A reduction given on the marked price, usually expressed as a percentage.
- Selling Price (SP): The final price paid by the customer after applying the discount.

In this context, the seller offers a discount of 16% on the marked price, resulting in a selling price of Rs 336. Our goal is to find the original marked price.

Mathematical Framework: Setting Up the Equation

To find the marked price, we need to understand the relationship between the marked price, discount, and selling price.

Let:

- MP = Marked Price (unknown)

Given:

- Discount = 16% of MP
- SP = Rs 336

The discount amount can be calculated as:

$$\text{Discount} = 16\% \times \text{MP} = \frac{16}{100} \times \text{MP}$$

The selling price after applying the discount is:

$$\text{SP} = \text{MP} - \text{Discount}$$

Substituting the discount:

$$\text{SP} = \text{MP} - \frac{16}{100} \times \text{MP}$$

$$\Rightarrow \text{SP} = \text{MP} \left(1 - \frac{16}{100}\right) = \text{MP} \times \frac{84}{100}$$

Thus, the relationship simplifies to:

$$\boxed{\text{SP} = \text{MP} \times \frac{84}{100}}$$

Given that SP = Rs 336, we have:

$$336 = \text{MP} \times \frac{84}{100}$$

Now, solving for MP:

$$\text{MP} = 336 \times \frac{100}{84}$$

Step-by-Step Calculation: Deriving the Marked Price

Let's perform the calculation systematically:

1. Express the ratio:

$$\frac{100}{84} = \frac{100}{84} = \frac{25}{21}$$

(simplified by dividing numerator and denominator by 4)

2. Compute the marked price:

$$\text{MP} = 336 \times \frac{25}{21}$$

3. Simplify further:

Divide 336 by 21:

$$336 \div 21 = 16$$

Thus,

$$\text{MP} = 16 \times 25 = 400$$

Therefore, the marked price of the tea set is Rs 400.

Confirming the Calculation: Verifying the Result

To ensure accuracy, verify by calculating the discount and final price:

- Discount amount:

$$16\% \text{ of } 400 = \frac{16}{100} \times 400 = 0.16 \times 400 = \text{Rs } 64$$

- Selling price:

$$400 - 64 = \text{Rs } 336$$

This confirms that the calculation aligns with the given selling price.

Practical Implications and Real-World Applications

Understanding how to compute marked prices after discounts is instrumental for consumers and retailers alike. It enables:

- Consumers to verify the authenticity of discount offers and ensure they are receiving genuine deals.
- Retailers to strategize pricing and discount policies to maximize profitability while maintaining customer trust.
- Financial Analysts to evaluate pricing trends and consumer behavior in retail markets.

In this case, the retailer advertised a 16% discount, which effectively reduced the price of the tea set from Rs 400 to Rs 336. Recognizing this allows consumers to gauge the actual savings and evaluate whether the deal aligns with market standards.

Additional Considerations: Variations and Complex Scenarios

While the current problem assumes a straightforward single discount, real-world scenarios often involve multiple discounts, taxes, or markups. Here are some variations:

- Multiple Discount Offers: Sequential discounts require a different calculation approach, considering compounding effects.
- Including Taxes: Additional taxes or levies can alter the final payable amount.
- Dynamic Marked Prices: Retailers may adjust marked prices based on demand, seasonality, or inventory levels.

Understanding the fundamental principles remains essential to navigate these complexities.

Summary and Key Takeaways

- The marked price of the tea set, given a 16% discount and a final price of Rs 336, is Rs 400.

- The core formula used:

$$\text{Marked Price} = \frac{\text{Final Price} \times 100}{100 - \text{Discount Percentage}}$$

- Calculation steps:

1. Convert discount percentage to decimal form.
2. Subtract the discount percentage from 100% to determine the proportion of the marked price retained.
3. Divide the final price by this proportion to find the marked price.

- Confirm calculations by verifying the discount amount and resultant price.

Final Thoughts: Empowering Consumers Through Mathematical Literacy

This exploration highlights the importance of mathematical literacy in everyday transactions. Whether purchasing a tea set or evaluating complex pricing strategies, understanding the interplay of discounts and marked prices equips consumers with the tools to make savvy decisions. Retailers, likewise, benefit from transparent pricing to build trust and foster long-term customer relationships.

By unraveling the mathematics behind discounts, we not only solve specific problems but also cultivate a mindset grounded in critical thinking and financial awareness—skills vital in today's dynamic marketplace.

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