

A Radio Is #5400 When A Discount Of 14%is Given For Each.What Is The Cash Price?

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Understanding the Problem: Calculating the Cash Price of a Radio

In today's retail environment, discounts are a common promotional strategy used by stores to attract customers and increase sales. When purchasing a product like a radio, understanding how discounts affect the final price is essential for both buyers and sellers. The problem at hand involves determining the original or cash price of a radio that is listed at 5400 after a 14% discount has been applied.

The question is: If a radio costs 5400 after a 14% discount, what was the original cash price? This calculation is fundamental in retail mathematics, allowing consumers to understand how discounts impact pricing and helping retailers set appropriate pricing strategies.

Key Concepts in Discount Calculations

Before diving into the solution, it's essential to familiarize ourselves with some fundamental concepts:

1. Original Price (Cash Price)

- The price of the product before any discounts are applied.
- Denoted as (P) .

2. Discount Percentage

- The percentage of the original price reduced during the discount period.
- Given as 14% in this case.

3. Selling Price (Discounted Price)

- The final price after the discount has been deducted.
- Denoted as (S) .

4. The Relationship Between Prices

- The selling price is calculated as:

$$S = P - (\text{discount amount})$$

- Or, equivalently:

$$S = P \times (1 - \frac{\text{discount percentage}}{100})$$

\]

Step-by-Step Solution to Find the Cash Price

Given:

- Discount percentage = 14%

- Discounted price (selling price) = 5400

We need to find the original price, (P) .

Step 1: Express the Discounted Price in Terms of the Original Price

$$S = P \times (1 - \frac{14}{100}) = P \times (1 - 0.14) = P \times 0.86$$

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Step 2: Set up the Equation and Solve for (P)

$$5400 = P \times 0.86$$

\]

$$P = \frac{5400}{0.86}$$

\]

Step 3: Calculate the Original Price

$$P = \frac{5400}{0.86} \approx 6279.07$$

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Therefore, the cash price of the radio is approximately 6279.07.

Understanding the Calculation: Why It Matters

Calculating the original price from the discounted price is a common task in retail and consumer finance. Recognizing the relationship between the discount percentage and the final price enables shoppers to:

- Determine the worth of a deal.
- Compare prices across different vendors.
- Understand how much they are saving.

For retailers, knowing how to reverse engineer the original price ensures accurate pricing strategies and promotional offers.

Additional Examples and Practice Problems

To deepen understanding, here are some similar problems:

Example 1:

If a laptop is sold at 8500 after a 10% discount, what is its original price?

Solution:

$$S = P \times (1 - \frac{10}{100}) = P \times 0.9$$

$$8500 = P \times 0.9$$

$$P = \frac{8500}{0.9} \approx 9444.44$$

Answer: The original price is approximately 9444.44.

Example 2:

An item costs 1200 after a 20% discount. Find the original price.

Solution:

$$S = P \times (1 - \frac{20}{100}) = P \times 0.8$$

$$1200 = P \times 0.8$$

$$P = \frac{1200}{0.8} = 1500$$

Answer: The original price is 1500.

Factors to Consider When Calculating Discounts

Understanding these factors helps ensure accurate calculations:

- Discount Rate Precision: Always convert percentages into decimals before calculations.
- Rounding Off: Decide on the appropriate decimal places for currency.
- Promotional Conditions: Sometimes discounts are compounded or applied differently; always read the terms carefully.
- Tax Implications: Additional taxes may affect the final price, so consider this in real-world scenarios.

Practical Applications of Discount Calculations

Knowledge of discount calculations is essential across various domains:

- Shopping and Consumer Decisions: Know the true cost of products after discounts.
- Retail Pricing Strategy: Set competitive prices while maintaining profit margins.
- Financial Planning: Calculate savings and expenses accurately.
- Marketing Promotions: Design attractive discounts that are profitable.

Conclusion: Mastering Discount Calculations

In summary, the problem of determining the cash price of a radio priced at 5400 after a 14% discount involves understanding the relationship between the original price, discount percentage, and the discounted price. By applying the formula:

$$\text{Original Price} = \frac{\text{Discounted Price}}{1 - \text{Discount Percentage}}$$

we find that the original cash price of the radio is approximately 6279.07. Mastering such

calculations empowers consumers to make informed purchasing decisions and helps retailers develop effective pricing strategies.

Whether you're a student, a shopper, or a business owner, grasping the fundamentals of discount calculations is a valuable skill that enhances your financial literacy and retail knowledge.

Meta Description: Discover how to calculate the original cash price of a radio priced at 5400 after a 14% discount. Learn step-by-step methods, examples, and practical tips for discount calculations.

Frequently Asked Questions

How do I calculate the cash price of a radio priced at 5400 after a 14% discount?

To find the cash price, multiply the original price by $(100\% - 14\%) = 86\%$. So, Cash Price = $5400 \times 0.86 = 4644$.

What is the formula to determine the discounted price of an item?

The formula is: Discounted Price = Original Price $\times (1 - \text{Discount Percentage}/100)$. In this case, it's $5400 \times (1 - 14/100) = 5400 \times 0.86$.

If a radio costs 5400 and a 14% discount is applied, what is the amount of discount?

The discount amount is 14% of 5400, which is $5400 \times 0.14 = 756$.

What is the final price of the radio after applying a 14% discount on 5400?

The final price is 5400 minus the discount amount: $5400 - 756 = 4644$.

Why is it important to understand discounts when purchasing electronics like radios?

Understanding discounts helps consumers determine the actual amount they will pay and enables better budgeting and comparison shopping for the best deals.

Additional Resources

A Radio Is 5400 When A Discount Of 14% Is Given For Each. What Is The Cash Price?

Understanding how discounts affect the final price of an item is essential for both consumers and retailers. In this guide, we will explore the problem involving a radio priced at 5400 after a 14% discount has been applied. Our goal is to determine the original or cash price—the price before the discount was applied. This type of problem is common in commerce and helps develop a clear understanding of percentage discounts, their calculations, and practical applications.

Introduction

When shopping for electronics or any high-value items, discounts are a common promotional strategy used by sellers to attract buyers. Calculating the original price or cash price of an item based on its discounted price is a vital skill in financial literacy. In this scenario, we are told that a radio costs 5400 after a 14% discount has been applied. The key question is: What was the original cash price before the discount?

Understanding this problem involves working backward from the discounted price to find the original price, which requires a grasp of percentage calculations and algebraic reasoning.

Understanding the Key Terms

Before we proceed with calculations, it's important to clarify some terms:

Discount

A discount is a reduction in the original price of an item, often expressed as a percentage. In this case, the discount is 14%, meaning the price is reduced by 14% of the original price.

Discounted Price (Selling Price)

The price after the discount has been subtracted. Here, it is 5400.

Cash Price (Original Price)

The price before any discount was applied—that is what we are asked to find.

Step-by-Step Approach to the Problem

Step 1: Set Up the Known Values

Let's denote the original cash price as P .

Given:

- Discount percentage = 14%
- Discounted price (selling price) = 5400

Step 2: Express the Discounted Price as a Function of the Original Price

The discounted price is the original price minus the discount:

Discounted Price = Original Price - Discount

Since the discount is 14%, the amount of discount is 14% of P, which can be written as:

$$\text{Discount amount} = 14\% \text{ of } P = 0.14 \times P$$

Therefore, the relationship becomes:

$$5400 = P - 0.14 \times P$$

Or, equivalently:

$$5400 = (1 - 0.14) \times P$$

Step 3: Simplify and Solve for P

Calculating the coefficient:

$$1 - 0.14 = 0.86$$

So, our equation simplifies to:

$$5400 = 0.86 \times P$$

To find P, divide both sides of the equation by 0.86:

$$P = 5400 / 0.86$$

Step 4: Calculate the Original Price

Performing the division:

$$P \approx 5400 / 0.86 \approx 6279.07$$

Therefore, the original cash price of the radio is approximately 6279.07.

Final Answer

The cash price (original price before the discount) of the radio is approximately 6279.07.

Additional Insights and Practical Applications

Why Is This Calculation Important?

Understanding how to compute original prices from discounted prices helps consumers make informed purchasing decisions. Retailers also use these calculations to set pricing strategies, ensuring discounts are attractive yet profitable.

Common Mistakes to Avoid

- Confusing discount percentage with the final price: Remember, the percentage applies to the original price, not the discounted price.
- Incorrectly subtracting the discount: Instead, always use the relationship between discounted price and original price via multiplication.

- Rounding errors: Be mindful of rounding, especially in financial contexts where precision matters.

Practical List: How to Approach Similar Problems

- Identify the discounted price and discount percentage.
- Express the discount as a decimal (e.g., 14% = 0.14).
- Set up the equation: Discounted Price = (1 - discount rate) × Original Price.
- Solve for the original price by dividing the discounted price by (1 - discount rate).
- Double-check your calculations to ensure accuracy.

Summary

In this detailed guide, we've examined the problem of finding the cash price of a radio that costs 5400 after a 14% discount. By translating the problem into an algebraic equation and solving for the original price, we discovered that the original or cash price was approximately 6279.07.

Understanding these concepts enhances financial literacy and empowers consumers to make smarter shopping decisions. Whether you're a student, a shopper, or a retailer, mastering the calculation of original prices from discounts is a key skill in everyday financial transactions.

Final Thoughts

Calculating the original price from a discounted price isn't just an academic exercise; it's a practical skill that applies across various scenarios—from shopping and budgeting to business pricing strategies. Remember to always interpret percentage discounts carefully, set up the correct algebraic relationships, and perform precise calculations. Armed with this knowledge, you'll be better prepared to understand pricing structures and make informed financial choices.

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