

QUESTION 33.13.1.1 How Many Items Did Thato Buy ? 3.1.2 Calculate The Total Discount Paid On The Items

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Introduction

Understanding how to interpret and analyze shopping transactions is fundamental in commerce and personal finance. The question, "How many items did Thato buy?" coupled with the task to "Calculate the total discount paid on the items," provides an excellent case study for applying basic arithmetic, percentage calculations, and logical reasoning. This article explores the detailed steps involved in solving such problems, emphasizing critical thinking and methodical calculation techniques to arrive at accurate answers.

Setting the Context

Scenario Overview

Imagine Thato visits a store and purchases several items. The store offers discounts on certain products, and Thato's bill reflects both the original prices and the discounts applied. To determine the total number of items purchased and the total savings, we need to analyze the data carefully.

Relevance of the Problem

This problem is not only a typical question in mathematics and business studies but also a practical skill in everyday shopping. Calculating the number of items and the total discount paid helps consumers understand their savings, compare deals, and budget effectively.

Analyzing the Data Provided

Key Information Needed

To solve the problem, we need specific data points, which generally include:

- The list of items purchased
- The original prices of each item
- The discounted prices or discount percentages
- The total amount paid after discounts

Assuming the problem provides such data, the goal is to decipher it correctly.

Typical Data Format

Usually, the data might be presented as follows:

Item	Original Price	Discount Percentage	Discounted Price
Item 1	R100	10%	R90
Item 2	R200	15%	R170
Item 3	R150	20%	R120

Alternatively, the total amount paid and the individual discount amounts might be provided.

Step-by-Step Approach to Find Out How Many Items Thato Bought

1. Count the Items

- The simplest way to determine the number of items Thato bought is to count the entries listed in the purchase data.
- If the data provides a list of items, the total number is the count of items in that list.

2. Verify the Data

- Cross-check the number of items with the total amount paid.

- Ensure that the sum of the individual item prices (after discounts) matches the total bill.

3. Handling Multiple Quantities of the Same Item

- Sometimes, multiple units of the same item are purchased.
- The data might specify quantities, e.g., 3 units of Item 1.
- In such cases, multiply the unit price by the quantity to find the total for each item.

4. Summing Up the Items

- Once all items and quantities are accounted for, sum their quantities to find the total number purchased.

Calculating the Total Discount Paid

Understanding Discounts

- Discounts can be given as a percentage of the original price or as a fixed amount.
- The total discount paid is the sum of all individual discounts on each item.

Methods to Calculate the Discount

- **Percentage-based discounts:** Multiply the original price by the discount percentage, then sum these values.
- **Fixed amount discounts:** Sum all the fixed discount amounts directly.

Example Calculation

Suppose Thato bought three items with the following details:

Item	Original Price	Discount Percentage	Discount Amount
Item 1	R100	10%	R10
Item 2	R200	15%	R30

| Item 3 | R150 | 20% | R30 |

- Total Discount Paid = R10 + R30 + R30 = R70

Alternatively, if only the total paid after discount and the original prices are known, the total discount can be calculated as:

Total Discount = (Sum of original prices) - (Total amount paid)

Practical Example with Complete Data

Given Data

Suppose Thato's purchase details are as follows:

- Item 1: 2 units at R100 each, 10% discount
- Item 2: 1 unit at R200, 15% discount
- Item 3: 3 units at R150 each, 20% discount

Calculations

1. Calculate individual discount amounts:

- Item 1: $R100 \times 10\% = R10$ per unit; for 2 units: $R10 \times 2 = R20$
- Item 2: $R200 \times 15\% = R30$
- Item 3: $R150 \times 20\% = R30$ per unit; for 3 units: $R30 \times 3 = R90$

2. Calculate total discount paid:

- $R20 + R30 + R90 = R140$

3. Calculate total items bought:

- $2 + 1 + 3 = 6$ items

Conclusion

By systematically analyzing the data, counting the items, and calculating the discounts, we can accurately determine how many items Thato bought and the total discount she paid.

The key steps involve understanding the structure of the data, applying basic arithmetic, and being attentive to quantities and discount percentages. Such skills are vital not only in academic settings but also in everyday financial decisions, fostering better money management and economic understanding.

Additional Tips for Solving Similar Problems

- Always verify whether quantities are specified.
- Use clear formulas for percentage calculations: $\text{Discount Amount} = \text{Original Price} \times \text{Discount Percentage}$.
- When total amounts are given, consider reverse calculations to find individual discounts.
- Keep organized records of each item, its price, quantity, and discounts for clarity.

Final Thoughts

Understanding how to interpret purchase data and calculate discounts enhances financial literacy and decision-making. Whether you're analyzing receipts, comparing deals, or preparing for exams, mastering these basic principles provides a solid foundation for effective personal finance management.

Frequently Asked Questions

What is the first step to determine how many items Thato bought in QUESTION 33.13.1.1?

Identify the total number of items purchased by analyzing the given quantities or transaction details provided in the question.

How do you calculate the total discount paid on the items in 3.1.2?

Multiply the discount rate or amount per item by the number of items to find the total discount paid.

What information is needed to find out how many items Thato bought?

Details such as the total amount spent, price per item, or the number of items purchased

are needed to determine the quantity bought.

Why is calculating the total discount important in this context?

Calculating the total discount helps determine the amount saved on the purchase, which is essential for understanding the overall cost and savings.

If the discount per item is known, how can you find the total discount paid?

Multiply the discount per item by the total number of items Thato bought.

What common mistake should be avoided when calculating total discounts?

Avoid confusing the discount amount per item with the total discount; ensure you multiply by the correct number of items.

Can you determine the number of items bought if only the total amount paid and the price per item are known?

Yes, by dividing the total amount paid by the price per item, you can find the number of items purchased.

How do discount calculations affect the total cost of items bought?

Discount calculations reduce the total cost, providing a clearer picture of the actual amount paid after discounts are applied.

Additional Resources

Question 33.13.1.1: How Many Items Did Thato Buy? 3.1.2: Calculate The Total Discount Paid On The Items

Introduction

In the realm of retail and commerce, understanding purchasing behavior and the financial implications of discounts is crucial for both consumers and businesses. The question "How many items did Thato buy?" coupled with "Calculate the total discount paid on the items" provides an insightful case study into these aspects. This review delves into the intricacies of such problems, exploring the steps to determine the quantity of items purchased and the total discount paid, with a comprehensive breakdown of concepts, methods, and

calculations involved.

Understanding the Context and Setting the Scene

Before diving into calculations, it is essential to comprehend the typical scenario that this question presents. Usually, such problems involve:

- A customer (Thato) purchasing multiple items.
- Each item potentially having a marked price.
- The application of discounts either as a percentage or a fixed amount.
- The need to determine the total number of items bought.
- The calculation of total discounts paid, which might involve multiple items with different discount rates.

Common Data Provided in Such Problems

- Number of items purchased (unknown initially).
- Price per item or total price before discount.
- Discount rate(s) applicable.
- Total amount paid after discounts.

Dissecting the Problem: Step-by-Step Approach

Step 1: Identify the Known Variables

In typical questions, you are provided with:

- Original prices of each item or the total sum before discounts.
- Discount percentages or fixed discount amounts for each item.
- The total amount paid after discounts.

Example:

Suppose Thato purchased 5 items, each costing R100, with a 10% discount on each, and the total paid was R450. The problem would then involve confirming the number of items and calculating the total discount.

Step 2: Set Up Equations Based on Known Data

The core idea is to establish an equation relating the known and unknown variables. For example:

- If each item has the same price and discount rate:

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$$\text{Total cost before discount} = \text{Number of items} \times \text{Price per item}$$

- The total discount paid:

$$\text{Total discount} = \text{Number of items} \times \text{Discount per item}$$

- The total amount paid after discount:

$$\text{Total paid} = \text{Total cost before discount} - \text{Total discount}$$

Step 3: Solve for the Unknowns

- Rearrange the equations to find the number of items:

$$\text{Number of items} = \frac{\text{Total paid} + \text{Total discount}}{\text{Price per item}}$$

- Or, if the discount rate is known:

$$\text{Total discount} = \text{Number of items} \times \text{Price per item} \times \frac{\text{Discount percentage}}{100}$$

Detailed Example: Applying the Concepts

Let's consider a hypothetical scenario that closely mirrors typical exam problems:

Given Data:

- Thato bought an unknown number of items.
- Each item originally costs R200.
- The store offered a 15% discount on each item.
- After discounts, Thato paid R2,550.

Objective:

1. Find out how many items Thato bought.
2. Calculate the total discount paid.

Step 1: Establish Variables and Known Quantities

- Price per item, $(P = R200)$
- Discount rate, $(D = 15\%)$
- Total paid after discounts, $(T = R2,550)$
- Number of items, $(n = ?)$ (unknown)

Step 2: Compute Discount per Item

The discount amount per item:

$$\text{Discount per item} = P \times \frac{D}{100} = R200 \times 0.15 = R30$$

Step 3: Determine Price After Discount per Item

Price after discount:

$$P_{\text{after}} = P - \text{discount} = R200 - R30 = R170$$

Step 4: Set Up the Equation for Total Payment

Total payment:

$$T = n \times P_{\text{after}} = n \times R170$$

Rearranged to find (n) :

$$n = \frac{T}{P_{\text{after}}} = \frac{R2,550}{R170} \approx 15$$

Since the number of items must be an integer, it's reasonable to conclude Thato bought 15 items.

Step 5: Calculate Total Discount Paid

Total discount paid:

$$\text{Total discount} = n \times \text{discount per item} = 15 \times R30 = R450$$

Summary:

- Thato bought 15 items.
- The total discount paid was R450.

Deeper Insights and Variations

While the previous example demonstrates a straightforward case, real-world problems often include complexities such as:

- Different items with varying prices.
- Multiple discount rates applied to different items.
- Discounts on total purchase rather than per item.
- Promotional offers like "buy one get one free" or "discounts on specific items."

Handling Multiple Items with Different Prices and Discounts

In cases where items differ, the process involves:

- Creating separate equations for each item or group of similar items.
- Summing individual totals to match the overall total paid.
- Solving simultaneous equations to find quantities and discounts.

Considering Percentage vs Fixed Discount

The type of discount affects calculations:

- Percentage Discount: Applied proportionally to the price.
- Fixed Discount: A set amount deducted regardless of price.

Understanding the nature of the discount is critical for accurate calculation.

Importance of Accurate Data and Assumptions

In solving such problems, assumptions may be necessary, especially if the data is incomplete. For example:

- Assuming all items are identical in price and discount.
- Confirming whether the discount applies per item or on the total bill.
- Ensuring that calculated quantities make sense within the context.

Careful analysis of the problem statement prevents errors and misinterpretations.

Practical Applications and Real-World Relevance

Understanding how to determine the number of items bought and the total discount paid has practical significance:

- For Consumers: Budget planning, understanding savings, and verifying receipts.
- For Retailers: Analyzing sales data, evaluating promotional effectiveness, and managing inventory.
- For Accountants and Financial Analysts: Accurate recording of discounts and sales revenue.

Summary and Key Takeaways

- The fundamental approach involves setting up equations based on the known data, then solving for unknown variables.
- Calculating total discounts involves understanding the discount rate, per-item discount amounts, and total quantities.
- Real-world problems may be more complex, requiring consideration of multiple variables, item-specific discounts, or promotional offers.
- Always verify the reasonableness of your results, especially when dealing with integers and real-world data.

Final Thoughts

The question "How many items did Thato buy?" coupled with "Calculate the total discount paid" exemplifies core mathematical concepts such as algebraic manipulation, percentage calculations, and problem-solving strategies. Mastering these skills not only helps in academic assessments but also enhances financial literacy and everyday decision-making. Whether analyzing a shopping receipt or studying sales data, the principles discussed here serve as foundational tools for quantitative reasoning.

In conclusion, understanding how to systematically approach such problems—identifying knowns and unknowns, setting up accurate equations, performing precise calculations, and interpreting the results—is essential. These skills build a strong foundation for more complex financial and mathematical analyses, fostering critical thinking and practical competence in everyday financial scenarios.

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