

8. Anna Withdrew \$50 From Her Checking Account. She Spent \$28 On A Pair Of Shoes. What Fraction Of Her

Introduction

8. Anna withdrew \$50 from her checking account. She spent \$28 on a pair of shoes. What fraction of her money did she spend? This question invites us to explore the concept of fractions in a real-world context. Understanding how to convert part-to-whole relationships into fractions is a fundamental mathematical skill that applies to everyday financial decisions, shopping, and budgeting. In this article, we will analyze this scenario in detail, break down the steps to find the fraction of money spent, and discuss related concepts such as simplifying fractions and interpreting their meaning in practical situations.

Understanding the Context

Breaking Down the Scenario

Let's first identify the key elements of the problem:

- Initial amount of money Anna withdrew: \$50
- Amount spent on shoes: \$28

The main goal is to determine what fraction of her initial withdrawal Anna spent on the shoes. This involves comparing the amount spent to the total amount she had available.

Converting the Situation Into a Fraction

Formulating the Fraction

To find the fraction of her money spent, we set up a ratio: the amount spent over the total amount withdrawn. This ratio is written as:

Fraction of money spent = Amount spent / Total amount withdrawn

Plugging in the numbers from the scenario:

Fraction of money spent = 28 / 50

This fraction represents the part of her money that she used to purchase shoes.

Simplifying the Fraction

Why Simplify Fractions?

Simplifying fractions makes them easier to interpret and compare. It reduces the fraction to its lowest terms, showing the most straightforward ratio of the parts involved.

Steps to Simplify 28/50

1. Find the greatest common divisor (GCD) of 28 and 50.
2. Divide both numerator and denominator by the GCD.

Finding the GCD

- Prime factors of 28: $2 \times 2 \times 7$
- Prime factors of 50: $2 \times 5 \times 5$
- Common prime factors: 2

Dividing by the GCD

$$28 \div 2 = 14$$

$$50 \div 2 = 25$$

Therefore, the simplified fraction is:

$$14 / 25$$

Interpreting the Fraction

What Does 14/25 Represent?

The fraction 14/25 indicates that Anna spent 14 parts out of 25 equal parts of her total withdrawal. To better understand this, we can convert the fraction into a decimal or percentage.

Converting to a Decimal

$$14 \div 25 = 0.56$$

This means Anna spent 0.56 of her total withdrawal, or 56%. Essentially, she used just over half of the money she withdrew.

Expressing as a Percentage

- Fraction to percentage: $0.56 \times 100 = 56\%$
- Interpretation: Anna spent 56% of the money she withdrew on shoes.

Additional Considerations

What if Anna Had Spent Less or More?

Suppose she spent a different amount. How would the fraction change? Let's explore some variations:

- If she spent \$20, the fraction would be $20/50 = 2/5 = 0.4 = 40\%$
- If she spent the entire \$50, the fraction would be $50/50 = 1$ or 100%
- If she spent \$35, the fraction would be $35/50 = 7/10 = 0.7 = 70\%$

This illustrates how the fraction directly corresponds to the proportion of her money spent.

Practical Applications

Budgeting and Financial Planning

Understanding fractions of money spent helps in budgeting and financial planning. For example, if someone wants to allocate only a certain percentage of their income to shopping, they can use fractions to set limits and track expenses accurately.

Shopping and Cost Analysis

Knowing what fraction of their total funds is spent on particular items can guide consumers in making more informed purchasing decisions, ensuring they stay within budget and avoid overspending.

Summary of Key Points

- The fraction of money Anna spent is $28/50$.

- Simplified, this fraction is $14/25$.
- This represents 56% of her initial withdrawal.
- Understanding fractions in real-world contexts helps in budgeting, saving, and financial decision-making.

Conclusion

In summary, the problem of determining what fraction of her money Anna spent involves setting up a ratio, simplifying it, and interpreting its meaning. The process highlights the importance of fractions in everyday life, from shopping to managing personal finances. By converting the fraction into more familiar forms like decimals and percentages, individuals can better grasp proportions and make more informed financial choices. Whether for personal budgeting or educational purposes, mastering these concepts enhances mathematical literacy and practical financial skills.

Frequently Asked Questions

What fraction of Anna's withdrawn money did she spend on shoes?

She spent 28 out of 50, which is $28/50$, or simplified to $\frac{14}{25}$ (one-half).

How much money did Anna withdraw and spend on shoes?

Anna withdrew \$50 and spent \$28 on shoes.

What is the remaining amount after Anna bought the shoes?

After buying shoes for \$28, she has $\$50 - \$28 = \$22$ remaining.

How do you express the amount spent on shoes as a fraction of the amount withdrawn?

The amount spent is 28, and the amount withdrawn is 50, so the fraction is $28/50$, which simplifies to $\frac{14}{25}$.

If Anna withdrew \$50 and spent \$28, what percentage of her withdrawal was used for shoes?

She spent 28 out of 50, which is $(28/50) \times 100 = 56\%$.

What is the simplified form of the fraction

representing the part of money spent on shoes?

The fraction $\frac{28}{50}$ simplifies to $\frac{1}{2}$ (one-half).

What is the importance of understanding fractions in budgeting and spending?

Understanding fractions helps in accurately determining proportions of money spent, managing budgets effectively, and making informed financial decisions.

Additional Resources

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In today's financial landscape, understanding how individual transactions relate to overall account balances provides valuable insights into personal budgeting and money management. Consider the scenario where Anna withdrew \$50 from her checking account and subsequently spent \$28 on a pair of shoes. At first glance, these figures might seem straightforward, but delving deeper reveals an interesting mathematical question: What fraction of her initial withdrawal did she spend on shoes? This exploration not only underscores fundamental financial concepts but also demonstrates how fractions and percentages can help us interpret our spending habits more effectively.

Understanding the Scenario: Money In, Money Out

Before calculating the fraction, it's essential to understand the sequence of events and the data involved:

- Initial withdrawal: Anna withdrew \$50 from her checking account.
- Spending on shoes: She spent \$28 of that withdrawn amount on a pair of shoes.

This sequence indicates that Anna had access to \$50, and part of that money was spent on the shoes, leaving some amount unspent or remaining in her account after the purchase.

Key Points:

- The withdrawal amount (\$50) represents the total funds Anna accessed from her account at that time.
- The expenditure (\$28) is part of that withdrawal, specifically allocated to the purchase of shoes.
- The remaining funds from the withdrawal, after the purchase, amount to \$50 - \$28 = \$22.

Calculating the Fraction: What Does It Mean?

The core question is: What fraction of her withdrawal did Anna spend on shoes?

Mathematically, this can be expressed as:

```
\[
\text{Fraction spent} = \frac{\text{Amount spent on shoes}}{\text{Total amount withdrawn}}
\]
```

Plugging in the numbers:

```
\[
\text{Fraction spent} = \frac{28}{50}
\]
```

This fraction indicates the proportion of the withdrawn money that Anna allocated to her shoe purchase.

Converting the Fraction to a Simplified Form

While the fraction $\frac{28}{50}$ provides a precise mathematical representation, it's often more meaningful to interpret this as a simplified fraction, a decimal, or a percentage.

Simplifying the Fraction

To simplify $\frac{28}{50}$:

1. Find the greatest common divisor (GCD) of 28 and 50.

- Factors of 28: 1, 2, 4, 7, 14, 28
- Factors of 50: 1, 2, 5, 10, 25, 50

2. The GCD of 28 and 50 is 2.

3. Divide numerator and denominator by 2:

```
\[
\frac{28 \div 2}{50 \div 2} = \frac{14}{25}
\]
```

Result: The simplified fraction is $\frac{14}{25}$.

Converting to a Decimal

To convert $\frac{14}{25}$ to a decimal:

```
\[
14 \div 25 = 0.56
\]
```

Interpretation: Anna spent 56% of her withdrawal amount on shoes.

Understanding the Implications of the Fraction

Knowing that Anna spent $\frac{14}{25}$ (or 56%) of her withdrawal on shoes offers insights into her spending behavior:

- Majority expenditure: Over half of her withdrawn funds went toward purchasing shoes, indicating a significant allocation of her available cash.
- Remaining funds: The remaining $\frac{11}{25}$ (or 44%) of the withdrawal, amounting to \$22, was not spent on shoes and may be used for other expenses or savings.

This kind of analysis is valuable for personal budgeting, as it helps individuals understand their spending patterns relative to their available cash.

Broader Applications and Financial Literacy

Understanding fractions in everyday financial transactions is more than just academic; it's foundational for making informed decisions about spending, saving, and budgeting.

Practical Applications:

- Budgeting: Knowing what fraction of your income or withdrawal you spend helps set limits and allocate funds wisely.
- Expense Tracking: Calculating the fraction spent on different categories (e.g., clothing, groceries, entertainment) allows for better financial planning.
- Savings Goals: Recognizing what portion of available funds is allocated to savings versus expenses informs future financial goals.

Educational Value:

Teaching individuals to interpret and manipulate such fractions enhances financial literacy, equipping them to manage their money more effectively.

Additional Considerations: Beyond the Basic Fraction

While the primary calculation is straightforward, some additional factors can influence how we interpret this scenario:

- Multiple Withdrawals: If Anna made multiple withdrawals, the context of

this particular transaction might differ.

- Total Monthly Income: Comparing the amount spent on shoes to her total income provides a broader perspective.
- Budget Limits: If Anna has a monthly budget, knowing what fraction her shoe purchase represents of her budget is crucial.

Real-World Example:

Suppose Anna earns \$200 weekly, and she withdraws \$50 on a shopping day, spending \$28 on shoes. Calculating what fraction of her weekly income this purchase represents:

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\[
\frac{28}{200} = 0.14 \quad \text{or} \quad 14\%
\]
```

This indicates she spent 14% of her weekly income on shoes that day, a useful metric for budgeting.

Summary and Key Takeaways

- Anna withdrew \$50 from her checking account and spent \$28 on shoes.
- The fraction of her withdrawal spent on shoes is $\frac{28}{50}$, which simplifies to $\frac{14}{25}$.
- As a decimal, this is 0.56, meaning she spent 56% of her withdrawal amount.
- Understanding such fractions helps in personal financial analysis, budgeting, and fostering responsible spending habits.
- Applying these concepts in real life aids in making informed financial decisions and tracking expenses relative to income.

Conclusion: The Power of Fractions in Personal Finance

While at first glance, Anna's transaction might seem like a simple spending event, examining it through the lens of fractions reveals deeper insights into her financial behavior. Recognizing what portion of her available funds she dedicated to a purchase not only clarifies her immediate spending but also lays the groundwork for more sophisticated financial planning. By mastering such basic mathematical concepts, individuals can better navigate their personal finances, make smarter choices, and ultimately achieve greater financial stability. Whether you're managing daily expenses or planning for future savings, understanding the role of fractions in your transactions is an invaluable tool in building financial literacy and confidence.

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