

A Basket Had 15 Mangoes. A Monkey Came And Took Away Two-fifths Of The Mangoes. How Many Mangoes Were

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Introduction

Mathematics is an essential skill that helps us solve everyday problems, understand patterns, and develop logical thinking. One common scenario involves simple fractions and basic arithmetic operations. For example, imagine a basket filled with mangoes, and a mischievous monkey comes along and takes some of them. How do we determine the number of mangoes remaining or taken? This type of problem helps build foundational skills in fraction calculation, subtraction, and understanding proportional parts. In this article, we will explore the problem: A basket had 15 mangoes. A monkey came and took away two-fifths of the mangoes. How many mangoes were taken? We will analyze the problem step-by-step, provide detailed explanations, and discuss related concepts to enhance your understanding of fractions and basic arithmetic operations.

Understanding the Problem

Before diving into calculations, it's crucial to understand the problem statement clearly:

- The initial number of mangoes in the basket: 15
- The fraction of mangoes taken by the monkey: two-fifths ($\frac{2}{5}$)
- The question: How many mangoes did the monkey take?

This problem involves fractional parts, which means we need to find a certain proportion of a whole, in this case, the total number of mangoes.

Key Concepts to Cover

- What is a fraction?
- How to calculate a fractional part of a whole number
- Basic multiplication and division involved in fractions
- Step-by-step solution process

What Is a Fraction?

A fraction represents a part of a whole. It consists of two parts:

- Numerator: The top number, indicating how many parts are considered
- Denominator: The bottom number, indicating how many parts the whole is divided into

For example, in $\frac{2}{5}$:

- 2 is the numerator, meaning two parts
- 5 is the denominator, meaning the whole is divided into five equal parts

Fractions can also be interpreted as division. So, $\frac{2}{5}$ is equivalent to $2 \div 5$.

Calculating Two-Fifths of 15 Mangoes

To find out how many mangoes the monkey took, which is two-fifths of 15, we need to perform the following steps:

Step 1: Understand the Fractional Calculation

The problem asks for two-fifths of 15:

$$\text{Number of mangoes taken} = \frac{2}{5} \times 15$$

Step 2: Convert the Fraction to a Decimal or Use Cross-Multiplication

You can either:

- Multiply 15 by 2, then divide by 5
- Or convert $\frac{2}{5}$ to a decimal (0.4), then multiply by 15

Method 1: Multiplying and Dividing

$$\frac{2}{5} \times 15 = \frac{2 \times 15}{5}$$

$$= \frac{30}{5}$$

$$= 6$$

Method 2: Decimal Approach

$$\frac{2}{5} = 0.4$$

$$0.4 \times 15 = 6$$

Both methods lead to the same answer: 6 mangoes.

Step 3: Confirm the Calculation

The monkey took 6 mangoes out of the basket.

The Final Answer: How Many Mangoes Were Taken?

The calculation clearly shows:

- The monkey took 6 mangoes.

This means the remaining mangoes in the basket can be calculated as:

$$15 - 6 = 9$$

So, after the monkey's action, 9 mangoes are left in the basket.

Visualizing the Problem

Understanding the problem visually can aid comprehension, especially for younger learners or visual thinkers.

Pie Chart Representation

Imagine a circle representing all 15 mangoes:

- Divide the circle into 5 equal parts (since the denominator is 5)
- Shade 2 parts to represent the mangoes taken by the monkey

This visual makes it clear that:

- Each part represents $\frac{15}{5} = 3$ mangoes
- Two parts ($\frac{2}{5}$) are taken, which is $2 \times 3 = 6$ mangoes

Related Concepts and Applications

Fractions in Daily Life

Fractions are everywhere in daily activities, such as cooking, shopping, and sharing items. Understanding how to calculate parts of a whole is crucial.

Real-Life Examples

- Dividing a pizza into slices
- Sharing candies equally among friends
- Calculating discounts during shopping

Teaching Fractions with Practical Examples

Using tangible objects like fruits or toys can help children grasp fractions better. For example, slicing an apple into parts to show fractions visually.

Additional Practice Problems

To reinforce understanding, here are some practice problems similar to the original:

1. A basket contains 20 apples. A squirrel takes away one-third of the apples. How many apples did the squirrel take?
2. There are 30 candies in a jar. A child eats half of the candies. How many candies are left?
3. A box has 18 chocolates. An animal takes away three-fifths of the chocolates. How many chocolates did it take?
4. If a cake is divided into 8 slices and you eat 3 slices, what fraction of the cake have you eaten?

Summary and Key Takeaways

- Fractions represent parts of a whole, expressed as numerator/denominator.
- To find a fractional part of a whole number, multiply the whole by the numerator and divide by the denominator.
- In the given problem, two-fifths of 15 mangoes equals 6 mangoes.
- Visual aids like pie charts can help in understanding fractional parts.
- Fractions are applicable in many real-life scenarios, emphasizing their importance.

Final Thoughts

Understanding how to calculate fractions of quantities is a fundamental skill in mathematics that supports problem-solving and analytical thinking. Starting with simple problems like the basket of mangoes helps build confidence and lays the groundwork for more complex mathematical concepts. Remember, practice makes perfect—so try solving various problems involving fractions, proportions, and basic arithmetic to strengthen your skills.

Frequently Asked Questions (FAQs)

Q1: What does two-fifths mean in simple terms?

A1: It means two parts out of five equal parts of a whole. If you divide something into five equal pieces, two of those pieces represent two-fifths.

Q2: How do I find a certain fraction of a number?

A2: Multiply the number by the numerator of the fraction, then divide by the denominator. For example, to find one-third of 12, calculate $\frac{1}{3} \times 12 = 12 \div 3 = 4$.

Q3: Why is understanding fractions important?

A3: Fractions are essential for dividing items, measuring quantities, understanding proportions, and solving real-world problems involving parts of a whole.

By mastering these concepts, you'll be able to confidently solve fraction-related problems similar to the mango basket scenario and apply these skills in everyday life.

Frequently Asked Questions

How many mangoes did the monkey take from the basket?

The monkey took 6 mangoes, which is two-fifths of 15.

What is the remaining number of mangoes after the monkey took some?

There are 9 mangoes remaining in the basket after the monkey took 6.

How do you calculate two-fifths of 15 mangoes?

Multiply 15 by $\frac{2}{5}$: $15 \times \frac{2}{5} = 6$ mangoes.

If the basket originally had 15 mangoes and the monkey took 6, what fraction of the mangoes was taken?

The monkey took 6 out of 15 mangoes, which is one-half or $\frac{1}{2}$.

What mathematical operation is used to find the number of mangoes taken by the monkey?

Multiplication is used to find two-fifths of 15, which gives the number of mangoes taken.

If the monkey had taken three-fifths of the mangoes, how many would that be?

Three-fifths of 15 mangoes is $15 \times \frac{3}{5} = 9$ mangoes.

What is the total number of mangoes left in the basket after the monkey took some?

There are 9 mangoes left in the basket after the monkey took 6.

Can you verify the number of mangoes taken using a fraction calculation?

Yes, two-fifths of 15 is calculated as $(2/5) \times 15 = 6$ mangoes, confirming the monkey took 6.

What is the importance of understanding fractions in solving this problem?

Understanding fractions helps accurately determine parts of a whole, such as calculating two-fifths of 15 mangoes.

Additional Resources

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Introduction

In the realm of everyday mathematics, simple story problems often serve as practical tools to develop foundational numerical skills. One such scenario involves a basket filled with mangoes, a mischievous monkey, and a question about how many mangoes remain after the monkey's mischievous act. This seemingly straightforward problem encapsulates key concepts such as fractions, multiplication, and subtraction, all of which are essential in understanding real-world applications of mathematics. In this article, we will explore the problem in depth, analyze the steps involved in solving it, and discuss the broader implications and applications of such problems in both educational and practical contexts.

Understanding the Scenario

The Basic Setup

The problem begins with a clear statement: "A basket had 15 mangoes." This establishes the initial quantity, which is a fixed, whole number. The number 15 is significant because it is a multiple of 3 and 5, making it convenient for fraction calculations.

The Monkey's Action

Next, the scenario introduces a monkey that "came and took away two-fifths of the mangoes." This phrase involves several key components:

- Fraction of Mangoes Taken: Two-fifths ($2/5$) indicates a part of the total quantity.
- Action: The monkey took away that fraction, implying removal from the original quantity.

Understanding this part is crucial because it involves applying fractional multiplication to determine

how many mangoes the monkey took.

Breaking Down the Mathematical Problem

Step 1: Identifying the Total Number of Mangoes

The total initial quantity is straightforward: 15 mangoes.

Step 2: Calculating Two-Fifths of 15

To find out how many mangoes the monkey took, we need to compute two-fifths of 15. This involves:

- Converting the fractional part into a multiplication problem:

Number of mangoes taken = Total mangoes $\times$ Fraction taken

- Performing the calculation:

Number of mangoes taken = $15 \times (2/5)$

Step 3: Performing the Multiplication

Calculating $15 \times (2/5)$:

- First, multiply 15 by 2:

$$15 \times 2 = 30$$

- Then, divide the result by 5:

$$30 \div 5 = 6$$

So, the monkey took away 6 mangoes.

Step 4: Calculating Remaining Mangoes

After the monkey's action, the remaining mangoes are:

- Total mangoes initially: 15

- Mangoes taken: 6

Remaining mangoes:

$$15 - 6 = 9$$

Interpreting the Results

The Final Count

The calculation reveals that after the monkey's mischievous act, 9 mangoes remain in the basket. This is the core answer to the problem: "How many mangoes were left?"

The Significance of Fractions in Real-World Contexts

This problem exemplifies how fractions are used beyond textbook exercises, reflecting real-world scenarios like sharing, dividing resources, or estimating parts of a whole.

Broader Mathematical Concepts Involved

Fractions as Parts of a Whole

- Fractions represent parts of a whole object or quantity.
- In this case, $\frac{2}{5}$ signifies two parts out of five equal parts of the mangoes.

Multiplication of Fractions and Whole Numbers

- Multiplying a fraction by a whole number involves scaling the fractional part.
- The process:

Whole number $\times$ Fraction = Part of the whole

- In our case, $15 \times (\frac{2}{5})$ calculates the exact number of mangoes taken.

Subtraction to Find Remaining Quantity

- Once the amount taken is known, subtraction determines what remains.
- This process mirrors common real-life tasks like balancing inventories or calculating leftovers.

Practical Applications and Educational Value

Developing Problem-Solving Skills

- Such problems encourage students to interpret textual information, translate it into mathematical expressions, and perform calculations systematically.

Understanding Fractions in Daily Life

- The scenario promotes understanding of fractions in contexts like dividing food, sharing resources, or estimating portions.

Building Foundations for Advanced Mathematics

- Mastery of these fundamental concepts paves the way for more complex topics such as ratios, percentages, and algebra.

Additional Perspectives and Variations

Varying the Fraction

- If the problem involved different fractions, such as one-third or three-fourths, similar steps could be followed, illustrating the flexibility of the method.

Changing Total Mangoes

- Adjusting the initial number of mangoes (e.g., 20, 25, or 30) demonstrates how the calculations adapt to different contexts, reinforcing understanding.

Consideration of Whole vs. Part Removal

- Exploring scenarios where the monkey took away whole mangoes or a specific number can deepen comprehension of fractional and whole number operations.

Real-World Implications of Such Problems

Inventory Management

- Farmers or vendors might need to calculate how much of a harvest they have after a certain amount is lost or eaten.

Sharing and Distribution

- Understanding how to divide resources fairly or determine leftovers is vital in household or commercial settings.

Risk Assessment

- Estimating losses due to theft or spoilage involves similar calculations, aiding in strategic planning.

Summary and Conclusion

The problem of assessing how many mangoes remain after a monkey takes away two-fifths of them is a straightforward yet profound example of applying basic mathematical principles to everyday situations. By breaking down the problem into manageable steps—identifying the total, calculating the fractional part, and performing subtraction—we develop a clear understanding of fractions, multiplication, and subtraction.

In this specific case, starting with 15 mangoes and removing two-fifths equates to removing 6 mangoes, leaving 9 in the basket. Such problems are more than academic exercises; they are practical tools that hone problem-solving skills, foster numerical literacy, and help us navigate real-world scenarios involving resource division and estimation.

Understanding and mastering these concepts lay the foundation for more advanced mathematical learning and practical decision-making. Whether in agriculture, commerce, or daily life, the ability to interpret and manipulate fractions and quantities remains an invaluable skill.

Final Thoughts

Mathematics is often viewed as an abstract discipline, but as demonstrated through this simple mango scenario, it is deeply intertwined with everyday life. By engaging with such problems, learners not only improve their numerical aptitude but also develop critical thinking skills that are applicable in countless real-world contexts. As you encounter similar problems, remember that breaking the problem into parts, understanding the underlying concepts, and applying systematic calculations are the keys to finding accurate and meaningful solutions.

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