

4. Gordon Purchased 5 False Teeth And 10 Fakespiders And Spent A Total Of \$35. The Price Of the False

4. Gordon Purchased 5 False Teeth And 10 Fakespiders And Spent A Total Of \$35. The Price Of the False is a fascinating problem that combines elements of basic arithmetic, algebra, and problem-solving skills. This scenario prompts us to analyze the costs associated with two different items—false teeth and fakespiders—based on the total amount spent and the quantity purchased. Understanding such problems can enhance critical thinking and mathematical reasoning, which are essential in everyday financial decisions and academic pursuits.

Understanding the Problem

Before diving into calculations, it's essential to clearly understand the details provided:

- Gordon bought 5 false teeth.
- He also bought 10 fakespiders.
- The total amount spent was \$35.
- The goal is to determine the price of the false teeth and, potentially, the price of the fakespiders.

This problem is a typical example of solving a system of linear equations where the total cost is split between two items with unknown individual prices.

Breaking Down the Key Components

Items Purchased and Their Quantities

- False Teeth: 5 units
- Fakespiders: 10 units

Total Expenditure

- Total amount spent: \$35

Unknown Variables

- Let x be the price of one false tooth.
- Let y be the price of one fakespider.

Setting Up the Mathematical Equations

Given the information, we can set up the following equation based on the total expenditure:

$$5x + 10y = 35$$

This equation means that five false teeth at price x each, plus ten fakespiders at price y each, sum to \$35.

Solving the System: Determining the Price of False Teeth

Simplify the Equation

Divide the entire equation by 5 to make calculations easier:

$$x + 2y = 7$$

Now, this simplified equation expresses the relationship between x and y .

Expressing One Variable in Terms of the Other

Rearranged, the equation becomes:

$$x = 7 - 2y$$

This indicates that the price of a false tooth depends on the price of a fakespider.

Exploring Possible Solutions

Since prices are generally non-negative and likely to be reasonable, we can consider various values of y and compute corresponding x .

Assumptions and Constraints

- Prices should be positive numbers (greater than zero).
- The prices should be realistic, e.g., less than or equal to a certain amount per item.

Calculating Prices for Different Values of y

y (price of one fakespider)	x (price of one false tooth)	Explanation
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0	7	If fakespiders are free, false teeth cost \$7 each.
1	5	Fakespiders at \$1 each, false teeth at \$5 each.
2	3	Fakespiders at \$2 each, false teeth at \$3 each.
3	1	Fakespiders at \$3 each, false teeth at \$1 each.
3.5	0	Fakespiders at \$3.5 each, false teeth free.

Validity of Solutions

- When $y = 0$, $x = \$7$ – plausible.
- When $y = 1$, $x = \$5$ – plausible.
- When $y = 2$, $x = \$3$ – plausible.
- When $y = 3$, $x = \$1$ – plausible.
- When $y > 3.5$, x becomes negative, which isn't realistic for prices.

Finding a Reasonable Cost for the False Teeth

Based on typical pricing, and the plausible solutions above, the most reasonable options are:

- False teeth cost around \$5 or \$3 per unit.
- Fakespiders cost around \$1 to \$2 each.

Suppose we assume the fakespiders cost \$1 each; then, the false teeth cost:

$$\backslash [x = 7 - 2(1) = 7 - 2 = \backslash \$5 \backslash]$$

This scenario looks reasonable, with false teeth at \$5 each and fakespiders at \$1 each.

Final Calculation and Verification

Total Cost Calculation

Using the assumed prices:

- 5 false teeth at \$5 each = $5 \times \$5 = \25
- 10 fakespiders at \$1 each = $10 \times \$1 = \10

Total = $\$25 + \$10 = \$35$, which matches the total expenditure.

Conclusion:

- Price of one false tooth = \$5
- Price of one fakespider = \$1

Additional Considerations

Variability of Prices

Depending on the context, prices could vary. For example, if fakespiders are priced higher, the false teeth would be cheaper, and vice versa. The key is that the sum must always total \$35 given the quantities.

Practical Application

Understanding how to solve such problems helps in real-life scenarios like budgeting, shopping, and evaluating deals. It also reinforces foundational algebra skills.

Summary

In this scenario, by setting up a simple algebraic equation, simplifying it, and exploring various solutions, we determined that:

- The price of each false tooth is approximately \$5.
- The price of each fakespider is approximately \$1.

This analysis not only answers the original question but also demonstrates how to approach similar problems involving multiple items and total costs.

Final Thoughts

Solving problems like "Gordon purchased 5 false teeth and 10 fakespiders for \$35" illustrates the importance of critical thinking and mathematical reasoning. Whether for academic purposes or everyday life, mastering these problem-solving techniques allows for better financial decision-making and analytical skills. Remember, always check your solutions to ensure they make sense within the given context, and consider multiple scenarios to understand the full range of possibilities.

Frequently Asked Questions

How much did Gordon pay for each false tooth if he bought 5 false teeth and spent a total of \$35?

Assuming all \$35 was spent on the false teeth and fake spiders equally, more information is needed about the cost of fake spiders to determine the price of each false tooth.

What is the total cost of the 10 fake spiders if Gordon spent \$35 in total?

Without specific prices for fake spiders, we cannot determine their total cost; additional details are required.

If the false teeth cost \$x each and the fake spiders cost \$y each, what equation represents the total amount spent?

The total cost can be represented as $5x + 10y = 35$.

Given the total spent and quantities purchased, how can we find the individual prices of false teeth and fake spiders?

We need either the price of one item or additional information about the costs to solve for individual prices using the equation $5x + 10y = 35$.

Are the false teeth and fake spiders priced equally or differently based on the provided information?

They are likely priced differently, as they are different items, but specific prices cannot be determined without more data.

Additional Resources

Gordon Purchased 5 False Teeth And 10 Fakespiders And Spent A Total Of \$35.
The Price Of The False

When analyzing a purchase involving multiple items at different prices, it's essential to understand how to break down the total cost into its constituent parts. In this case, Gordon bought 5 false teeth and 10 fakespiders, spending a total of \$35. The key question is: What is the price of each false tooth and each fakespider? This problem involves setting up and solving algebraic equations, a common approach in mathematical word problems. This guide will walk you through the process step-by-step, providing clarity on how to approach similar problems and decipher the costs involved.

Understanding the Problem

Before diving into calculations, it's vital to distill the core information:

- Gordon purchased two types of items:

- False teeth (quantity: 5)
- Fakespiders (quantity: 10)
- The total amount spent on these items was \$35.
- The price of each false tooth (unknown) is what we need to find.
- The price of each fakespider (unknown) is also what we need to find.

Setting Up Variables

To translate the word problem into algebra, assign variables to the unknown prices:

- Let x = the price of one false tooth (in dollars)
- Let y = the price of one fakespider (in dollars)

Using these variables, you can express the total cost as an algebraic equation.

Formulating the Equation

The total cost is calculated by multiplying the quantity of each item by its price and summing these amounts:

- Cost of false teeth: $5x$
- Cost of fakespiders: $10y$

Since the total spent is \$35, the equation becomes:

$$5x + 10y = 35$$

This is a linear equation with two variables. To find unique values for x and y , we need an additional piece of information or an assumption. In many real-world problems, either the prices are related in a specific way or additional data is provided.

Exploring Additional Assumptions or Constraints

Without further data, the problem is underdetermined—meaning there are infinitely many solutions satisfying the equation. To proceed, consider common assumptions or constraints:

Assumption 1: Prices are whole dollars (integer values)

Assumption 2: The price of false teeth is less than the price of fakespiders

Assumption 3: The prices are positive (costs cannot be negative)

Solving Under the Assumption that Prices Are Whole Dollars

Let's assume x and y are both positive integers. The equation:

$$5x + 10y = 35$$

can be simplified by dividing through by 5:

$$x + 2y = 7$$

Now, the problem reduces to finding pairs of positive integers (x, y) such that:

$$x + 2y = 7$$

And both x and y are positive integers.

List possible solutions:

- For $y = 1$: $x = 7 - 2(1) = 7 - 2 = 5$
- For $y = 2$: $x = 7 - 4 = 3$
- For $y = 3$: $x = 7 - 6 = 1$
- For $y \geq 4$: x becomes negative, which is not valid for a price

Thus, the valid solutions are:

y	x
1	5
2	3
3	1

Interpreting the Solutions

Each solution corresponds to a different plausible scenario, depending on the prices:

Scenario 1:

- False teeth cost \$5 each
- Fakespiders cost \$1 each

Total cost check:

$$(5 \text{ } \$5) + (10 \text{ } \$1) = \$25 + \$10 = \$35$$

Scenario 2:

- False teeth cost \$3 each
- Fakespiders cost \$2 each

Total cost check:

$$(5 \text{ } \$3) + (10 \text{ } \$2) = \$15 + \$20 = \$35$$

Scenario 3:

- False teeth cost \$1 each
- Fakespiders cost \$3 each

Total cost check:

$$(5 \text{ } \$1) + (10 \text{ } \$3) = \$5 + \$30 = \$35$$

Each of these solutions is mathematically valid under the assumptions. The actual prices depend on additional context or constraints, which could be based on typical market prices or other factors.

Practical Considerations and Implications

Which scenario makes the most sense?

- If false teeth are generally more expensive than fakespiders, then Scenario 1 or Scenario 2 might be more realistic.
- If the problem states or implies certain prices, that information could help narrow down the correct scenario.
- In real-world applications, prices often follow market standards, so considering typical costs can guide selection.

Cost per item overview:

Scenario	Price of False Teeth		Price of Fakespiders		Total Cost
1	\$5	\$1	\$3	\$2	\$35
2	\$3	\$2	\$3	\$2	\$35
3	\$1	\$3	\$3	\$2	\$35

Extending the Problem: Additional Constraints

If more information were available, such as:

- The price of false teeth is twice the price of fakespiders
- The false teeth cost a fixed amount
- The prices are within a certain range

then, the problem could be refined further, leading to a unique solution.

Example:

Suppose we know the price of false teeth is twice the price of a fakespider:

$$x = 2y$$

Substitute into the original simplified equation:

$$x + 2y = 7$$

becomes:

$$2y + 2y = 7$$

$$4y = 7$$

which yields $y = 7/4 = 1.75$, not an integer, but valid as a dollar amount.

Thus, in this scenario:

- False teeth cost \$3.50 each
- Fakespiders cost \$1.75 each

Total check:

$$(5 \$3.50) + (10 \$1.75) = \$17.50 + \$17.50 = \$35$$

This demonstrates how additional constraints can lead to precise prices, even if not whole numbers.

Summary and Key Takeaways

- Formulate algebraic equations based on the quantities and total cost.
- Simplify equations to manageable forms to find possible solutions.
- Use assumptions (whole dollar amounts, positive prices, realistic market values) to narrow down solutions.
- List all feasible solutions to understand the range of possible prices.
- In real-world scenarios, additional data or constraints are necessary to determine unique prices.

Final Thoughts

Determining the price of individual items from total purchase data is a classic algebraic problem that involves setting up equations, simplifying, and analyzing solutions. Whether for academic exercises or practical shopping analysis, understanding the process helps in making informed inferences and solving similar problems efficiently. Remember always to consider the context and any additional constraints to arrive at the most realistic and meaningful solution.

If you encounter similar problems, follow these steps:

1. Identify variables and assign symbols.
2. Translate word problems into algebra.
3. Simplify equations for clarity.
4. Apply assumptions or constraints to narrow solutions.
5. Verify solutions by plugging back into the original context.

By mastering this approach, you'll be well-equipped to tackle a wide range of algebraic word problems involving multiple items and total costs.

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