

Three Hermit Crabs At A Pet Store Cost \$ 21. 75. If Each Hermit Crab, H , Costs The Same Amount, Which

Three Hermit Crabs At A Pet Store Cost \$21.75. If Each Hermit Crab, H, Costs The Same Amount, Which is a common question that combines basic arithmetic with practical shopping. Whether you're a student learning about division and pricing or a pet enthusiast curious about the costs of pet crabs, understanding how to determine the individual price of each hermit crab is essential. In this article, we will explore the problem in detail, breaking down the calculation process, and providing useful tips for budgeting and purchasing pet animals like hermit crabs.

Understanding the Cost of Hermit Crabs

Basic Information About the Purchase

When purchasing multiple hermit crabs from a pet store, the total price often reflects the combined cost of all individual animals. In this scenario, three hermit crabs are bought together for a total of \$21.75. The key question is: What is the cost of each hermit crab if they are priced equally?

Why Uniform Pricing Matters

Most pet stores price similar animals uniformly, especially when they are of comparable size and species. This makes it straightforward to calculate the individual price by dividing the total cost by the number of animals.

Calculating the Cost of a Single Hermit Crab

Step 1: Identify the Total Cost

The total amount paid for three hermit crabs is given as \$21.75.

Step 2: Determine the Number of Hermit Crabs

The number of hermit crabs purchased is 3.

Step 3: Use Division to Find the Cost per Hermit Crab

The calculation involves dividing the total cost by the number of hermit crabs:

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\[
\text{Cost per hermit crab} = \frac{\text{Total cost}}{\text{Number of hermit crabs}} = \frac{\$21.75}{3}
\]
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Step 4: Perform the Division

Dividing \$21.75 by 3:

- $\$21.75 \div 3 = \7.25

Therefore, each hermit crab costs \$7.25.

Understanding the Significance of the Calculation

Practical Applications

Knowing how to calculate the price per item when buying in bulk is useful in various situations:

- Budgeting for pet expenses
- Comparing prices across different stores
- Understanding pricing structures for bulk purchases

Educational Value

This problem is a practical example of division, which is a fundamental concept in mathematics. It helps students develop skills in:

- Division and basic arithmetic
- Problem-solving with real-world data
- Understanding unit pricing

Additional Tips for Pet Store Purchases

1. Always Check for Consistency in Pricing

Before purchasing multiple animals, verify that each animal is priced equally, especially if buying from different sources or different batches.

2. Consider the Total Budget

Calculate the total cost beforehand and compare it with your budget. For example, if each hermit crab costs \$7.25, buying five would cost:

$$\begin{array}{l} \backslash[\\ 5 \times \$7.25 = \$36.25 \\ \backslash] \end{array}$$

Make sure this fits within your budget.

3. Ask About Additional Costs

Some pet stores may charge extra for supplies like tanks, substrate, or accessories. Always factor these into your total expenditure.

4. Research Care Requirements

Beyond cost, understand the care needs of hermit crabs, including habitat, diet, and environmental conditions, to ensure your pet's health and happiness.

5. Compare Prices Across Stores

Prices can vary. Comparing costs helps you find the best deal for the same species and size of hermit crabs.

Additional Mathematical Scenarios Related to Pet Purchases

Scenario 1: Discount Offers

Suppose the pet store offers a 10% discount when purchasing three hermit crabs. How much would you pay in total?

- First, determine the total original price: \$21.75
- Calculate the discount: 10% of \$21.75 = $0.10 \times \$21.75 = \2.175
- Subtract discount: $\$21.75 - \$2.175 = \$19.575$

Total after discount: \$19.58 (rounded to two decimal places)

Scenario 2: Buying Different Quantities

If you want to buy 5 hermit crabs at the same price per crab:

- Individual price remains \$7.25
- Total cost: $5 \times \$7.25 = \36.25

Scenario 3: Comparing Cost Per Hermit Crab in Different Packages

If a different package offers 4 hermit crabs for \$28, what is the cost per crab?

- Cost per crab: $\$28 \div 4 = \7.00

This is cheaper per crab than buying 3 for \$21.75, which shows the benefit of bulk purchasing.

Summary: How Much Does Each Hermit Crab Cost?

To conclude, when three hermit crabs at a pet store cost \$21.75 and each is priced equally, the calculation is straightforward:

- Cost per hermit crab = Total cost ÷ Number of crabs = $\$21.75 \div 3 = \7.25

This simple division helps pet owners budget effectively and understand the unit price of their pets. It's a practical example of dividing total costs to find individual prices, a skill applicable in many shopping and budgeting scenarios.

Final Thoughts

Understanding how to calculate the cost of individual items from a total purchase is an essential financial skill. Whether you're buying hermit crabs, other pets, or everyday items, dividing the total cost by the number of items gives you clarity on unit pricing. Always compare prices, consider additional costs, and plan your budget accordingly to make informed purchasing decisions. Remember, mathematics isn't just theoretical—it's a valuable tool in everyday life, especially when caring for and managing pet expenses.

Frequently Asked Questions

If three hermit crabs cost \$21.75, what is the cost of one hermit crab?

To find the cost of one hermit crab, divide \$21.75 by 3. $\$21.75 \div 3 = \7.25 . So, each hermit crab costs \$7.25.

How much would five hermit crabs cost at the same price?

Since each hermit crab costs \$7.25, five hermit crabs would cost $5 \times \$7.25 = \36.25 .

If a customer has \$50, how many hermit crabs can they buy?

Dividing \$50 by the cost per hermit crab, $\$50 \div \$7.25 \approx 6.9$. Since they can't buy a fraction of a crab, they can buy 6 hermit crabs.

What is the total cost for 10 hermit crabs?

10 hermit crabs at \$7.25 each would cost $10 \times \$7.25 = \72.50 .

If the price of each hermit crab increases by \$1, what would be the new total cost for three hermit crabs?

New price per hermit crab: $\$7.25 + \$1 = \$8.25$. Total cost for three crabs: $3 \times \$8.25 = \24.75 .

If a pet store sells 4 hermit crabs at the original price, what is the total revenue?

At \$7.25 each, 4 hermit crabs would generate $4 \times \$7.25 = \29.00 in revenue.

Additional Resources

Three Hermit Crabs At A Pet Store Cost \$21.75. If Each Hermit Crab, H, Costs The Same Amount, Which—these words may seem straightforward at first glance, but they open the door to a variety of mathematical concepts and problem-solving strategies that are both practical and educational. Whether you're a student brushing up on basic algebra, a pet store owner managing inventory costs, or simply a curious mind exploring how to divide costs evenly, understanding how to approach such problems is essential. In this comprehensive guide, we will break down the problem step-by-step, explore related concepts, and provide practical tips for solving similar questions with confidence.

Understanding the Problem

Before delving into calculations, it's important to fully understand what the problem is asking. The statement provides:

- The total cost for three hermit crabs: \$21.75.
- The fact that each hermit crab costs the same.
- The goal: to determine the cost of one hermit crab.

This is a classic example of a division problem where the total amount is split evenly among a known number of items.

Breaking Down the Key Components

Total Cost and Number of Items

- Total Cost (T): \$21.75
- Number of Items (N): 3 hermit crabs
- Cost per item (H): ?

Knowing these, the core mathematical relationship can be expressed as:

Total Cost = Number of Items $\times$ Cost per Item

or symbolically,

$$T = N \times H$$

Our goal is to find H.

Step-by-Step Solution

Step 1: Set Up the Equation

From the problem:

$$\$21.75 = 3 \times H$$

Step 2: Isolate the Unknown

To find H, divide both sides of the equation by 3:

$$H = \$21.75 \div 3$$

Step 3: Perform the Calculation

Perform the division:

$$- 21.75 \div 3$$

One way to do this is to think of the division in parts:

- $3 \times 7 = 21$
- Remaining: $21.75 - 21 = 0.75$

Divide 0.75 by 3:

$$- 3 \times 0.25 = 0.75$$

Adding these:

$$- 7 + 0.25 = 7.25$$

So,

$$H = \$7.25$$

Answer: Each hermit crab costs \$7.25

Exploring Related Concepts

Understanding this problem opens doors to various mathematical principles and real-world applications.

1. Basic Division and Multiplication

- Recognizing when to use division to split a total into equal parts.
- Confirming multiplication as the inverse operation.

2. Unit Cost Calculation

- Determining the cost per item when given total cost and quantity.
- Practical in shopping, budgeting, and inventory management.

3. Proportions and Ratios

- The ratio of total cost to number of items: $\$21.75 : 3$
- The unit cost is the quotient of total cost divided by number of items.

4. Handling Currency and Decimals

- Working with decimal amounts in dollars and cents.
- Ensuring proper rounding and formatting, especially in financial contexts.

Practical Tips for Similar Problems

Tip 1: Always Write an Equation

Transform word problems into algebraic equations to clarify what you're solving for.

Tip 2: Break Down the Numbers

- Use long division if necessary.
- Break numbers into parts to simplify calculations.

Tip 3: Check Your Work

- Multiply your answer by the number of items to verify it equals the total cost.
- For our example, $7.25 \times 3 = 21.75$. Confirmed!

Tip 4: Be Mindful of Currency

- Keep track of cents and avoid rounding errors.
- Use decimal notation consistently.

Applying the Concept to Similar Scenarios

Scenario 1: Multiple Items with Different Total Costs

Suppose you buy 5 different pets with varying prices. To find the average cost:

- Sum all costs.
- Divide by the number of pets.

Scenario 2: Discounted Items

If a hermit crab costs \$7.25 normally, but there's a 10% discount:

- Calculate the discount amount: $\$7.25 \times 0.10 = \0.725
- Subtract from the original cost: $\$7.25 - \$0.725 = \$6.525$

Round to two decimal places: \$6.53

Summary of Key Takeaways

- To find the cost per item when total cost and quantity are known, divide the total by the number of items.
- Always verify your answer by multiplication.
- Be comfortable working with decimals and currency.
- Use algebraic equations to organize and solve problems efficiently.

Final Thoughts

The question, "Three hermit crabs at a pet store cost \$21.75. If each hermit crab, H, costs the same amount, which?" may seem simple, but it encapsulates fundamental mathematical skills that are part of everyday life. Whether you're calculating expenses, splitting costs among friends, or managing inventory, mastering these principles empowers you to solve problems confidently and accurately. Remember, breaking down complex questions into manageable steps is the key to unlocking their solutions.

Happy calculating!

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