

16.1 Breakfasts Cost \$7.50. Find the Customer's Total Cost For ordering 100 Breakfasts. Explain The Number

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Understanding how to calculate the total cost of multiple items is a fundamental skill in mathematics, particularly in real-world scenarios such as purchasing food, supplies, or services. In this article, we will analyze the problem of determining the total cost when ordering 100 breakfasts, each priced at \$7.50, and explain the reasoning behind each step involved in the calculation.

Breaking Down the Problem

Before diving into the calculation, let's clearly understand the problem statement:

- Each breakfast costs \$7.50.
- The customer wants to order 100 breakfasts.
- The goal is to find the total cost of this order.

This problem involves basic multiplication, which is often used to find the total cost when multiple units of the same item are purchased at a fixed price.

Understanding the Components

To solve the problem efficiently, we need to understand the key components involved:

Price per Breakfast

- The cost of a single breakfast is \$7.50.
- This is a fixed price, meaning each breakfast costs the same regardless of how many are ordered.

Number of Breakfasts

- The customer intends to order 100 breakfasts.

- The number of items directly affects the total cost.

Calculating the Total Cost

The core mathematical operation required here is multiplication:

Total Cost = Price per item × Number of items

Applying this formula to our problem:

Total Cost = \$7.50 × 100

Step-by-Step Calculation

1. Express the numbers clearly:

- Price per breakfast: \$7.50
- Quantity: 100

2. Perform the multiplication:

- Multiply 7.50 by 100:

$7.50 \times 100 = (7.50 \times 100)$

3. Simplify the calculation:

- Recognize that multiplying by 100 shifts the decimal two places to the right:

$7.50 \times 100 = 750.00$

4. Interpreting the result:

- The total cost for 100 breakfasts is \$750.00.

Explanation of the Number 750

The number 750 results from multiplying the cost of a single breakfast by the total number of breakfasts ordered. Here's an in-depth explanation:

Why is the total \$750?

- The unit price is \$7.50, which contains a decimal, indicating cents.
- When multiplying by 100, the decimal moves two places to the right:

$$7.50 \times 100 = 7.50 \times (10^2) = (7.50 \times 10) \times 10 = 75.0 \times 10 = 750$$

- This confirms that the total cost is \$750.

The importance of understanding decimal multiplication

- Multiplying decimals may seem complex, but understanding the positional value of decimals simplifies the process.
- Multiplying by powers of 10 (like 100) shifts the decimal point to the right, effectively converting the decimal into a whole number.

Additional Considerations

While the calculation appears straightforward, considering some additional factors can be helpful:

Tax and Additional Charges

- The calculation assumes no tax or additional fees.
- In real-world scenarios, taxes (e.g., sales tax) may apply, increasing the total.

Bulk Discounts

- Sometimes, purchasing large quantities might qualify for discounts.
- If applicable, the total cost calculation would need to incorporate the discount rate.

Payment Methods and Budgeting

- Knowing the total cost helps customers plan their payment.
- Budgeting ensures customers have sufficient funds for the purchase.

Summary of the Calculation

Step	Description	Calculation	Result
1	Identify unit price	$\$7.50$	$\$7.50$
2	Determine quantity	100	100
3	Multiply	7.50×100	750
4	Final total		$\$750.00$

Therefore, the total cost for ordering 100 breakfasts at \$7.50 each is \$750.00.

Real-World Applications of This Calculation

Understanding how to calculate total costs is essential in various scenarios:

- Catering Services: Businesses or individuals ordering large quantities of food.
- Event Planning: Estimating expenses for breakfast buffets.
- Business Budgeting: Calculating costs for employee meals or promotional events.
- Personal Budgeting: Planning for grocery shopping or meal prep.

Practice Problems to Reinforce the Concept

To solidify understanding, consider these practice problems:

1. If each breakfast costs \$7.50, what is the total cost for 50 breakfasts? (Answer: \$375.00)
2. Suppose there is a 10% sales tax on each breakfast. What is the total cost for 100 breakfasts? (Answer: \$825.00)
3. If a customer has a budget of \$800, what is the maximum number of breakfasts they can order at \$7.50 each? (Answer: 106 breakfasts, since $7.50 \times 106 = \$795.00$)

Note: When solving these, remember to adjust the calculation based on the specific problem, considering taxes or discounts as needed.

Conclusion

Calculating the total cost for multiple items at a fixed price involves straightforward multiplication, but understanding the underlying principles ensures accuracy and confidence in your calculations. In the case of ordering 100 breakfasts at \$7.50 each, the total cost is clearly \$750.00. Recognizing how decimal multiplication works, especially when multiplying by powers of 10, is a valuable skill that can be applied in many financial and everyday situations. Whether planning for large events, managing personal finances, or understanding business costs, mastering these basic arithmetic operations is essential for effective decision-making and budgeting.

Frequently Asked Questions

How do you calculate the total cost for ordering 100 breakfasts if each costs \$7.50?

Multiply the cost per breakfast (\$7.50) by the total number of breakfasts (100): $7.50 \times 100 = \$750$.

What is the total cost for 100 breakfasts priced at \$7.50 each?

The total cost is \$750, obtained by multiplying 7.50 by 100.

Why is multiplication used to find the total cost of 100 breakfasts?

Because the total cost is the price per breakfast multiplied by the number of breakfasts ordered.

If the breakfast price increases to \$8.00, what would be the new total for 100 breakfasts?

The new total would be $8.00 \times 100 = \$800$.

Can you explain the importance of understanding unit cost in calculating total expenses?

Yes, understanding unit cost helps determine the total expense for multiple items by multiplying the unit price by the quantity ordered.

Additional Resources

16.1 Breakfasts Cost \$7.50. Find the Customer's Total Cost For Ordering 100 Breakfasts. Explain The Number

Introduction

In the realm of everyday economics and consumer decision-making, understanding how to calculate total costs based on unit prices is fundamental. A common scenario involves determining the total expenditure when purchasing multiple units of a product or service. For instance, consider the case where a breakfast costs \$7.50, and a customer plans to order 100 breakfasts. Such calculations are not only important for individual budgeting but also serve as foundational skills in financial literacy, business planning, and economic analysis.

This article aims to meticulously analyze the problem: "16.1 Breakfasts Cost \$7.50. Find the Customer's Total Cost For ordering 100 Breakfasts. Explain The Number." We will explore the mathematical principles involved, break down the calculation process, and discuss the significance of each component in detail.

The Basics of Cost Calculation

Before delving into the specific problem, it's essential to understand the core concept: total cost is the product of unit cost and quantity purchased.

Mathematically:

$$\text{Total Cost} = \text{Unit Cost} \times \text{Quantity}$$

Where:

- Unit Cost is the price per individual item or service.
- Quantity is the number of items or services purchased.

In this context:

- Unit Cost = \$7.50 (cost per breakfast)
- Quantity = 100 (number of breakfasts ordered)

Step-by-Step Breakdown of the Calculation

1. Identifying the Unit Cost

The problem states that each breakfast costs \$7.50. This price includes all costs associated with the breakfast, whether it's ingredients, preparation,

or service fees—assuming no additional charges or discounts.

2. Determining the Quantity

The customer intends to order 100 breakfasts. This is a straightforward quantity, but it's important to confirm whether any bulk discounts or special pricing applies. Since the problem explicitly provides the unit cost as \$7.50 without mention of discounts, we proceed with the assumption that pricing remains constant.

3. Applying the Formula

Using the basic cost formula:

$$\text{Total Cost} = \$7.50 \times 100$$

Calculating:

$$\text{Total Cost} = \$750$$

This means the customer will spend \$750 to purchase 100 breakfasts at the specified unit price.

Explaining the Number: Why \$7.50 per Breakfast?

Understanding the significance of the number \$7.50 is crucial in contextualizing the total cost. This figure reflects the market or restaurant's pricing strategy, which might be influenced by factors such as ingredient costs, labor, overhead, and profit margin.

From a mathematical perspective, the unit cost is a fixed value used to scale the total expenditure. It's important to note that the total cost scales linearly with the number of units purchased, assuming the unit price remains constant.

Deep Dive: Variations and Real-World Considerations

While the straightforward calculation yields a total cost of \$750, real-world scenarios often involve additional factors:

1. Bulk Discounts

Some restaurants or vendors offer discounts for large orders. For example:

- 5% discount on orders over 50 breakfasts.
- This would alter the total calculation:

$$\text{Discounted Total} = (\text{Unit Cost} \times \text{Quantity}) \times (1 - \text{Discount Rate})$$

For a 5% discount:

$$\text{Discounted Total} = \$7.50 \times 100 \times 0.95 = \$712.50$$

Understanding such nuances is vital for accurate budgeting and negotiation.

2. Taxes and Tips

In many contexts, taxes (e.g., sales tax) and tips apply:

- Suppose a sales tax of 8% applies.

$$\text{Total with tax} = \text{Total Cost} \times (1 + \text{Tax Rate})$$

$$\text{Total with tax} = \$750 \times 1.08 = \$810$$

- Tips or service charges could further increase the final amount paid.

3. Additional Fees or Charges

Some establishments might charge a delivery fee, service fee, or surcharge, all of which should be considered in comprehensive cost analysis.

Practical Applications and Implications

Understanding how to calculate total costs based on unit prices aids consumers, business owners, and analysts in various ways:

- Budgeting: Consumers can plan expenses effectively.
- Business Planning: Vendors can estimate revenue based on expected sales volume.
- Pricing Strategies: Businesses can analyze how unit pricing affects total sales and profit margins.
- Economic Analysis: Economists assess consumer behavior based on pricing structures.

Summary of the Calculation

Step	Description	Calculation	Result
1	Identify unit cost	$\$7.50$	$\$7.50$
2	Determine quantity	100	100
3	Calculate total cost	$\$7.50 \times 100$	$\$750$

Therefore, the total cost for ordering 100 breakfasts at \$7.50 each is \$750.

Final Thoughts: Significance of the Number

The number \$7.50 acts as a fundamental unit value in this scenario, representing the price of a single breakfast. When scaled to 100 units, it underscores how small per-unit costs can accumulate significantly with larger quantities. The calculation exemplifies the importance of understanding unit costs in financial decision-making and highlights the linear relationship between quantity and total cost in the absence of discounts or additional factors.

By grasping these principles, consumers and business operators can make informed choices, optimize their budgets, and strategize their pricing models effectively. The number \$7.50, simple yet powerful in this context, encapsulates the essence of unit pricing and its role in economic calculations.

Conclusion

Calculating the total cost of purchasing multiple units at a fixed unit price is a fundamental skill in financial literacy. In the specific case of 16.1 Breakfasts Cost \$7.50. Find the Customer's Total Cost For ordering 100 Breakfasts, the straightforward multiplication yields a total expenditure of \$750. Recognizing the significance of each component—unit price, quantity, and potential additional costs—enables more accurate financial planning and decision-making. Whether for personal budgeting, business operations, or economic analysis, mastering such calculations is an essential competency.

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