

A Watch Decreased In Price By $\frac{5}{6}$. After The Reduction It Was Priced At 15. What Was The Original Price

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When it comes to understanding price reductions and calculating original prices, it can sometimes seem complicated. However, with a clear approach, you can easily determine the original price of a product based on its discounted price and the amount of reduction. In this article, we will explore how to find the original price of a watch that has undergone a specific percentage decrease, specifically a decrease of $\frac{5}{6}$, leading to a final price of 15. We will break down the problem, explain the mathematical concepts involved, and provide a step-by-step guide to arrive at the original price.

Understanding the Problem

Before diving into calculations, it's essential to understand the problem statement thoroughly:

- The watch's price was decreased by a fraction, specifically $\frac{5}{6}$.
- After this reduction, the watch's selling price is 15.
- The goal is to find the original price before the reduction.

This scenario involves concepts of percentage reduction, fractions, and basic algebra, which are common in financial calculations, discounts, and pricing strategies.

Key Concepts and Terminology

To solve this problem accurately, let's review some key concepts:

Original Price

The initial cost of the watch before any discounts or reductions.

Reduced Price

The final price after applying the reduction.

Fractional Reduction

The amount by which the original price is decreased, expressed as a fraction of the original price.

Mathematical Representation

Using algebra, the relationship between original price, reduction, and final price can be expressed as:

$$\text{Final Price} = \text{Original Price} \times (1 - \text{Fraction of Reduction})$$

In this case, the fraction of reduction is $\frac{5}{6}$.

Step-by-Step Calculation

Let's break down the problem into manageable steps to find the original price.

Step 1: Understand the Reduction

The watch's price was decreased by $\frac{5}{6}$ of its original price. Therefore:

$$\text{Reduction Amount} = \text{Original Price} \times \frac{5}{6}$$

Step 2: Express the Final Price

The final price after reduction is the remaining part of the original price:

$$\text{Final Price} = \text{Original Price} - \text{Reduction Amount}$$

Substituting the reduction amount:

$$\text{Final Price} = \text{Original Price} - \left(\text{Original Price} \times \frac{5}{6} \right)$$

Factor out the original price:

$$\text{Final Price} = \text{Original Price} \times \left(1 - \frac{5}{6} \right)$$

Simplify:

$$\text{Final Price} = \text{Original Price} \times \frac{1}{6}$$

\]

Given that the final price is 15:

\[

$$15 = \text{Original Price} \times \frac{1}{6}$$

\]

Step 3: Solve for the Original Price

Multiply both sides of the equation by 6:

\[

$$\text{Original Price} = 15 \times 6 = 90$$

\]

Therefore, the original price of the watch was 90.

Summary of the Calculation

Step	Calculation	Result
1	Reduction fraction	5/6
2	Final price after reduction	15
3	Final price formula	Final Price = Original Price $\times$ (1 - 5/6) = Original Price $\times$ 1/6
4	Solve for Original Price	Original Price = 15 $\times$ 6 = 90

Final Answer: The original price of the watch was 90.

Additional Insights and Real-World Applications

Understanding such calculations is not only useful for solving math problems but also has practical applications in shopping, sales, and financial planning. Here are some ways this knowledge can be applied:

1. Discount Calculations

Knowing how to reverse-engineer discounts helps consumers determine the original price of items on sale, aiding in making informed purchasing decisions.

2. Business Pricing Strategies

Retailers often use fractional discounts to attract customers. Calculating the original price helps in setting competitive prices and understanding profit margins.

3. Financial Literacy

Mastering these calculations fosters better financial literacy, enabling individuals to manage budgets and compare prices effectively.

Common Variations and Related Problems

While this specific problem involves a reduction of $\frac{5}{6}$, similar problems can involve other fractions or percentages. Here are some variations:

1. Different Fractional Reductions

- What if the reduction was $\frac{1}{4}$, $\frac{1}{3}$, or $\frac{2}{3}$?
- How does that affect the calculation process?

2. Different Final Prices

- If the final price was different, how would the original price change?
- For example, if the final price was 20 after a $\frac{5}{6}$ reduction, what was the original price?

3. Percentage Reductions

- Converting fractions to percentages (e.g., $\frac{5}{6}$ = approximately 83.33%) to understand the scale of discounts.

Conclusion

Calculating the original price of a product after a known fractional reduction is a fundamental skill in mathematics with numerous practical applications. In this scenario, a watch reduced by $\frac{5}{6}$ of its original price and selling for 15 reveals an original price of 90. By understanding the relationship between fractional reductions and final prices, consumers and professionals alike can make better financial decisions, analyze discounts, and appreciate the importance of algebra in everyday life.

Remember, whenever you face similar problems, identify the fraction or percentage reduction, set up the appropriate algebraic equation, and solve step-by-step. With practice, these calculations become intuitive and invaluable in both academic and real-world contexts.

Frequently Asked Questions

If a watch's price decreased by $\frac{5}{6}$ and after the reduction it was priced at \$15, what was its original price?

The original price was \$45.

How do you find the original price of a watch when it decreased by $\frac{5}{6}$ to reach \$15?

Let the original price be x . The reduced price is $x - (\frac{5}{6})x = (\frac{1}{6})x$. Setting $(\frac{1}{6})x = \$15$, so $x = \$15 \times 6 = \90 .

What fraction of the original price is the watch after a $\frac{5}{6}$ reduction?

After a $\frac{5}{6}$ reduction, the price is $\frac{1}{6}$ of the original price.

If a watch's price drops by $\frac{5}{6}$ and the new price is \$15, what is the percentage decrease?

The percentage decrease is 83.33%, since decreasing by $\frac{5}{6}$ of the original means reducing the price by approximately 83.33%.

Can you verify the original price if the watch now costs \$15 after a $\frac{5}{6}$ reduction?

Yes. Since the reduced price is $\frac{1}{6}$ of the original, original price = $\$15 \times 6 = \90 .

What is the significance of the $\frac{5}{6}$ decrease in calculating the original price of the watch?

It indicates the watch's price was reduced by five-sixths of its original value, leaving one-sixth of the original price as the new price.

How would the calculation change if the watch was decreased by a different fraction, say $\frac{2}{3}$, and the final price was \$15?

If decreased by $\frac{2}{3}$, then the remaining price is $\frac{1}{3}$ of the original. Setting $(\frac{1}{3})x = \$15$, so original price $x = \$15 \times 3 = \45 .

What is the formula to find the original price when a watch is decreased by a fraction and the final price is known?

If decreased by fraction f , then final price = $(1 - f) \times$ original price. To find original price, rearranged as original = final price / $(1 - f)$.

Is the original price of the watch \$90 if after a 5/6 reduction it costs \$15?

Yes, because $\frac{1}{6}$ of the original price equals \$15, so original price is $15 \times 6 = \$90$.

Additional Resources

A Watch Decreased In Price By $\frac{5}{6}$. After The Reduction It Was Priced At 15. What Was The Original Price?

Introduction

In the world of luxury accessories and timepieces, pricing dynamics often reveal a lot about market strategies, consumer perception, and value assessment. The seemingly straightforward question — "A watch decreased in price by $\frac{5}{6}$. After the reduction, it was priced at 15. What was the original price?" — might appear trivial at first glance. However, this query opens the door to a comprehensive investigation into price deduction calculations, the importance of accurate notation, and the methods used to interpret ambiguous data.

In this article, we will dissect the problem, analyze potential interpretations, and arrive at a logical solution through mathematical reasoning. Our goal is to clarify the confusion, outline the correct approach, and offer insights into similar pricing puzzles often encountered in retail and appraisal contexts.

Understanding the Core Question

At the heart of the problem lie two key pieces of information:

1. The watch's price was decreased by an amount described as " $\frac{5}{6}$ ".
2. After this reduction, the watch's price was 15.

The central ambiguity is the phrase " $\frac{5}{6}$," which could be interpreted in multiple ways:

- As a fraction: " $\frac{5}{6}$ "
- As an integer subtraction: "5 minus 6" (which would be negative)
- As a typographical error or misprint, possibly intending "56"
- As a mathematical expression involving both numbers

Given the context and standard mathematical notation, the most plausible interpretation is that " $\frac{5}{6}$ " represents the fraction $\frac{5}{6}$. This is a common way of expressing a fractional decrease, especially in financial calculations.

Deciphering the Phrase "Decreased By $\frac{5}{6}$ "

Common Interpretations:

- Interpretation 1: The decrease is $\frac{5}{6}$ of the original price

This suggests that the watch's price was reduced by five-sixths of its original value.

- Interpretation 2: The decrease was a fixed amount of 5.6

In this case, the decrease is 5.6 units (e.g., dollars). But since the subsequent price is 15, and the original price would be significantly higher, this is less likely unless the currency is not specified.

- Interpretation 3: The phrase is a typo or formatting error

Possibly, it was meant to say " $\frac{5}{6}$ " or "56".

Given standard mathematical conventions and the structure of the question, Interpretation 1: the decrease was $\frac{5}{6}$ of the original price seems most plausible.

Mathematical Approach

Assuming the decrease was $\frac{5}{6}$ of the original price, and after this reduction, the price is 15, we can proceed as follows:

Let:

- O = original price
- D = amount decreased
- P_{after} = price after decrease = 15

From the assumption:

$$D = \frac{5}{6} \times O$$

And the post-decrease price:

$$P_{\text{after}} = O - D$$

Substituting D :

$$15 = O - \frac{5}{6} \times O$$

Simplify:

$$15 = O \left(1 - \frac{5}{6}\right)$$

$$15 = O \times \frac{1}{6}$$

Multiply both sides by 6:

$15 \times 6 = O$

$O = 90$

Conclusion from this interpretation:

- Original Price = 90

Validity Check:

- The decrease amount: $\frac{5}{6} \times 90 = 75$

- Price after reduction: $90 - 75 = 15$

This matches the given post-reduction price, confirming the consistency of the assumption.

Alternative Interpretation: The Decrease Was 5/6 of the Decreased Amount, Not the Original Price

Suppose the phrase could be interpreted differently — for example, that the decrease was 5/6 of some other value, or that the decrease itself was 5.6 units, and the final price was 15.

However, this leads to contradictions or unwieldy calculations, especially without further context.

Summary of plausible interpretations

Interpretation	Decrease	Calculation	Original Price
Decrease is 5/6 of original	Yes	$O - \frac{5}{6}O = 15$	90
Decrease is fixed amount 5.6	No	$O - 5.6 = 15$	20.6
Decrease is 5/6 of some other value	No	N/A	N/A

Given the context, the first interpretation is the most logical and standard.

Broader Context: Price Reduction Strategies and Their Implications

Understanding such pricing puzzles not only helps in solving specific problems but also provides insight into retail strategies:

- Fractional discounts (like 25%, 50%, 75%) are common in retail, especially during sales.
- Large fractional discounts (like 5/6) imply significant markdowns, often used in clearance sales.
- Calculating original prices from discounted prices enables retailers and consumers to assess the true value and discount magnitude.

Practical Applications and Real-world Examples

Suppose a luxury watch retailer is offering a clearance sale, reducing prices by a substantial

fraction. For example:

- A watch originally priced at \$90 is discounted by 5/6, bringing it down to \$15.
- Customers and appraisers need to understand the original value to assess savings or valuation.

Similarly, in appraisal valuation or resale, understanding the extent of discounts helps determine market value and pricing fairness.

Final Thoughts and Key Takeaways

- The most consistent and logical interpretation of the phrase "A watch decreased in price by 5 6" is that the reduction was five-sixths (5/6) of the original price.
- Using algebra, the original price is calculated as \$90.
- The critical step is interpreting ambiguous notation correctly; in mathematical contexts, "5 6" most naturally translates to 5/6.
- Recognizing the context and standard notation conventions is essential when interpreting vague or ambiguous phrasing.

Summary

Aspect	Explanation
Assumed decrease	5/6 of original price
Final price after reduction	\$15
Calculated original price	\$90
Validation	$(90 - \frac{5}{6} \times 90 = 15)$

Closing Remarks

This exercise underscores the importance of clarity in communication, especially regarding numerical and financial data. Whether in retail, finance, or everyday problem-solving, precise notation and context are crucial for accurate interpretation.

For enthusiasts and professionals analyzing prices, understanding how to reverse-engineer discounts and valuations provides a valuable skill set, allowing for informed decision-making and accurate assessments.

In conclusion, the original price of the watch was \$90.

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