

# 90 Is 72 Percent Of What Number

## 90 Is 72 Percent Of What Number: A Comprehensive Guide to Understanding Percentages and Solving Such Problems

**90 Is 72 Percent Of What Number** is a common question in mathematics that involves understanding percentages and how to manipulate them to find unknown values. Whether you're a student preparing for exams, a professional solving real-world problems, or someone interested in improving your math skills, grasping how to approach such questions is essential. This article aims to provide a detailed explanation of this problem, including the concepts of percentages, step-by-step solutions, practical applications, and tips to master similar questions.

## Understanding the Basic Concepts of Percentages

### What Is a Percentage?

A percentage is a way of expressing a number as a fraction of 100. It is denoted using the percent sign (%). For example, 72% means 72 out of 100 or  $72/100$ .

### Why Are Percentages Important?

- They help compare quantities easily.
- Used in financial calculations, discounts, interest rates, and statistics.
- Essential for understanding data in everyday life, from shopping to health metrics.

## Converting Percentages to Decimals and Fractions

To work effectively with percentages, it's helpful to convert them into decimal or fractional form:

- $72\% = 72/100 = 0.72$  (decimal)
- $72\% = 18/25$  (fraction in simplest form)

# Breaking Down the Problem: 90 Is 72 Percent Of What Number

## Representing the Problem Mathematically

Let's denote the unknown number as  $X$ . The problem states that 90 is 72% of this number, which can be written as an equation:

$$90 = 72\% \text{ of } X$$

Expressing 72% as a decimal:

$$72\% = 0.72$$

So, the equation becomes:

$$90 = 0.72 \times X$$

## Solving for $X$

To find  $X$ , rearrange the equation:

- $X = 90 / 0.72$

Now, perform the division:

$$X = 125$$

## Step-by-Step Solution to Find the Unknown Number

### Step 1: Write the Equation

Identify the known and unknown quantities. In this case, 90 is the known quantity, and the unknown is  $X$ .

### Step 2: Convert the Percentage to a Decimal

- $72\% = 0.72$

### Step 3: Set Up the Equation

- $90 = 0.72 \times X$

### Step 4: Solve for X

- $X = 90 / 0.72$
- $X = 125$

**Final Answer:** The number is 125

## Practical Applications of Percentage Problems

### Real-Life Scenarios

Understanding how to solve "percentage of a number" problems has numerous practical uses:

1. **Shopping Discounts:** Calculating the original price when given a discounted price and percentage off.
2. **Financial Calculations:** Determining the principal amount based on interest earned or paid.
3. **Statistics and Data Analysis:** Finding total populations or sample sizes based on known percentages.
4. **Health and Fitness:** Calculating calorie intake or body fat percentages.

### Example: Finding the Original Price After Discount

If a product costs \$90 after a 28% discount, what was the original price?

Solution:

- Let the original price be  $P$ .
- Discounted price =  $P - 28\% \text{ of } P = (1 - 0.28) \times P = 0.72 \times P$
- Set up the equation:  $0.72 \times P = 90$
- So,  $P = 90 / 0.72 = 125$

The original price was \$125.

## **Additional Tips for Solving Percentage Problems**

### **1. Always Convert Percentages to Decimals**

This simplifies calculations and reduces errors. For example, 72% becomes 0.72.

### **2. Write Down the Equation Clearly**

Translate word problems into mathematical equations to avoid confusion.

### **3. Use a Calculator for Precise Division**

Dividing by decimal values like 0.72 is straightforward with a calculator.

### **4. Check Your Solution**

Verify the answer by substituting back into the original problem to ensure correctness.

### **5. Practice with Different Percentages**

Vary the percentages and contexts to build confidence and improve problem-solving skills.

## **Common Mistakes to Avoid**

- Forgetting to convert percentages into decimals before calculations.
- Mixing up numerator and denominator during division.
- Misinterpreting the problem statement.
- Not verifying the solution by plugging it back into the original question.

## **Summary: Mastering the Art of Percentage Calculations**

Understanding that **90 is 72 percent of what number** hinges on grasping the

relationship between percentages and the original quantities. By converting percentages into decimal form and setting up simple algebraic equations, you can efficiently find the unknown number. This skill is not only fundamental in academic settings but also highly applicable in everyday financial, shopping, and data analysis scenarios.

## **Conclusion**

Mastering percentage problems like "90 is 72 percent of what number" enhances your mathematical literacy and problem-solving abilities. Remember to convert percentages to decimals, formulate clear equations, and verify your solutions. With consistent practice and attention to detail, you'll become proficient at solving similar questions quickly and accurately, empowering you in academics, career, and daily life.

## **Frequently Asked Questions**

**What is the general method to find the number when given a percentage and part of that number?**

To find the number, divide the part by the percentage (expressed as a decimal). For example, if 72% of a number is 90, divide 90 by 0.72.

**How do I calculate the number when 72% of it equals 90?**

Convert 72% to decimal form (0.72) and then divide 90 by 0.72:  $90 \div 0.72 = 125$ .

**What is the answer to '90 is 72% of what number'?**

The number is 125 because 72% of 125 equals 90.

**Can you explain the steps to find the number if 90 is 72% of it?**

Yes, first convert 72% to decimal (0.72), then divide 90 by 0.72:  $90 \div 0.72 = 125$ . So, the number is 125.

**Is there a shortcut to solve '90 is 72% of what number'?**

Yes, use the formula:  $\text{Number} = \text{Part} \div \text{Percentage (as a decimal)}$ . So,  $125 = 90 \div 0.72$ .

**What is the importance of converting percentage to decimal in this problem?**

Converting percentage to decimal allows you to perform division accurately to

find the original number.

## **If 72% of a number is 90, how can I verify the answer?**

Multiply the found number (125) by 0.72:  $125 \times 0.72 = 90$ , confirming the calculation is correct.

## **Are there any real-life situations where this type of problem applies?**

Yes, such problems are common in calculating original prices after discounts, determining total quantities from partial data, or analyzing percentages in data analysis.

## **Additional Resources**

90 is 72 percent of what number? This question might seem straightforward at first glance, but it actually opens the door to understanding how percentages work, how to set up simple algebraic equations, and how to solve for unknowns in practical scenarios. Whether you're a student brushing up on math skills, a teacher preparing lesson plans, or someone needing a quick calculation for real-world application, grasping this problem thoroughly can be incredibly beneficial. In this comprehensive guide, we'll delve into the concept behind "90 is 72 percent of what number," explore step-by-step solutions, provide useful tips, and highlight common pitfalls to avoid.

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### Understanding the Question

Before jumping into calculations, it's essential to interpret what the question is asking. The phrase "90 is 72 percent of what number" essentially asks:

- Given a part (90), which is a percentage (72%) of some unknown total (let's call it X), what is the total number X?

This is a typical percentage problem where you know a part and the percentage that part represents of the whole, and you need to find the whole.

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### Breaking Down the Concept of Percentages

Percentages are a way of expressing a number as a fraction of 100. For example:

-  $72\% = 72/100 = 0.72$

In the context of the problem:

- 72% of some number X equals 90.

Mathematically, this can be written as:

Part = Percentage Whole

or

$$90 = 0.72 X$$

This equation forms the basis of the problem and will guide us toward the solution.

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### Step-by-Step Solution

Let's formalize the steps involved in solving the problem:

#### Step 1: Write the Equation

From the problem statement:

90 is 72 percent of X

Translate to algebra:

$$90 = 72\% \text{ of } X$$

which simplifies to:

$$90 = 0.72 X$$

#### Step 2: Isolate the Unknown (X)

To find X, divide both sides of the equation by 0.72:

$$X = 90 / 0.72$$

#### Step 3: Perform the Calculation

Calculate:

$$X = 90 / 0.72$$

Performing division:

$$- 90 / 0.72 = 125$$

(You can do this calculation with a calculator, or manually convert to fractions for better understanding.)

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### Final Answer

$$X = 125$$

Therefore, 90 is 72 percent of 125.

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### Additional Examples and Variations

Understanding this problem allows you to solve similar questions with different numbers or percentages. Let's explore some variations:

Example 1: If 90 is 72% of what number?

- Already solved: answer is 125.

Example 2: If 90 is 50% of what number?

- Equation:  $90 = 0.50 \times X$   
-  $X = 90 / 0.50 = 180$

Example 3: If 90 is what percentage of 200?

- Equation:  $\text{Part} = \text{Percentage} \times \text{Whole}$   
-  $90 = X \times 200$   
-  $X = 90 / 200 = 0.45$  (or 45%)

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### Practical Applications of Percentage Problems

Percentage calculations like this are common in various contexts:

- Financial calculations: Finding the total amount based on a partial payment or discount.
- Statistics: Determining the total population based on a sample percentage.
- Education: Calculating the total score based on a percentage score.
- Business: Calculating total sales based on a percentage of revenue.

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### Tips for Solving Percentage Problems

1. Always convert percentages to decimals: Divide the percentage by 100 before performing calculations.
2. Identify knowns and unknowns: Clearly define what is given and what needs to be found.
3. Set up a simple algebraic equation: Usually,  $\text{Part} = \text{Percentage} \times \text{Whole}$ .
4. Use a calculator for precision: Especially when dealing with decimals.
5. Double-check your answer: Verify by plugging your solution back into the original percentage expression.

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### Common Mistakes to Avoid

- Confusing the part and the whole: Remember, the part is the portion you know, and the whole is what you're solving for.
- Mixing percentages with proportions: Always convert percentages to decimal form before calculations.
- Incorrectly setting up equations: Ensure the formula aligns with the problem statement.
- Ignoring units: Be consistent with your units, especially when dealing with large numbers or multiple variables.

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### Summary of the Process



To summarize, solving "90 is 72 percent of what number" involves these fundamental steps:

1. Convert the percentage to a decimal:  $72\% = 0.72$
2. Write the equation:  $90 = 0.72 X$
3. Solve for X:  $X = 90 / 0.72$
4. Calculate the value:  $X = 125$

This process applies universally to similar percentage problems, making it a valuable skill for various academic and practical purposes.

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### Final Thoughts

Understanding how to determine the number when given a percentage of it is a foundational math skill. The problem "90 is 72 percent of what number" encapsulates the core concept of translating real-world percentage questions into simple algebraic equations. With practice, you'll be able to approach such problems confidently, whether they involve calculations in finance, statistics, or everyday decision-making.

Mastering these techniques not only enhances your mathematical literacy but also empowers you to solve real-world problems efficiently and accurately. Remember, the key is to carefully interpret the problem, set up the correct equation, perform precise calculations, and verify your results.

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Now that you understand the process, try practicing with different values to strengthen your skills!

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