

When Negative Five Is Subtracted From A Number The Result Is 10. Find The Number. A) -5 B) 15 C) 5 D) -15

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Understanding basic algebraic concepts is essential for solving a wide range of mathematical problems. One such problem involves finding an unknown number based on a simple equation. In this article, we will explore the question: When negative five is subtracted from a number, the result is 10. Find the number. The options provided are A) -5, B) 15, C) 5, and D) -15. We will analyze how to approach this problem step-by-step, learn the underlying principles, and understand why the correct answer is what it is.

Understanding the Problem Statement

The problem can be restated in algebraic terms. The statement "When negative five is subtracted from a number, the result is 10" translates to an equation involving an unknown variable, typically denoted as x .

Restated as an algebraic equation:

$$x - (-5) = 10$$

This might seem complex at first glance because of the double negative, but it follows a straightforward rule in algebra: subtracting a negative number is equivalent to adding its positive counterpart.

Key points to note:

- The phrase "from a number" indicates that the unknown number is x .
- "Negative five" is represented as -5 .
- The phrase "when negative five is subtracted from a number" indicates an operation: $x - (-5)$.
- The "result is 10" indicates the equation's right side: $= 10$.

Breaking Down the Equation

To solve the problem, let's clarify the equation:

Equation:

$$> x - (-5) = 10$$

Step 1: Simplify the expression

Subtracting a negative number is equivalent to adding:

$$> x + 5 = 10$$

Step 2: Solve for x

To find x, subtract 5 from both sides:

$$> x = 10 - 5$$

$$> x = 5$$

Result: The unknown number x is 5.

Identifying the Correct Option

From the options given:

- A) -5
- B) 15
- C) 5
- D) -15

The value we found, $x = 5$, matches option C.

Verifying the Solution

It's always good practice to verify the solution by substituting $x = 5$ back into the original problem statement:

> Original statement: When negative five is subtracted from the number, the result is 10.

Substitution:

$$> 5 - (-5) = ?$$

Calculate:

$$> 5 + 5 = 10$$

Since the left side equals 10, the solution $x = 5$ is correct.

Additional Examples and Practice

Understanding how to manipulate similar problems is crucial for strengthening algebra skills. Here are some additional examples:

- **Example 1:** If $x - (-3) = 7$, what is x ?
- **Solution:** $x + 3 = 7 \rightarrow x = 7 - 3 \rightarrow x = 4$
- **Example 2:** When 8 is subtracted from a number, the result is 3. Find the number.
- **Solution:** $x - 8 = 3 \rightarrow x = 3 + 8 \rightarrow x = 11$

Understanding Negative Numbers and Subtraction

Negative numbers often cause confusion, especially in subtraction operations. Here are some key concepts:

The Rule for Subtracting Negative Numbers

- Subtracting a negative number is equivalent to adding the positive of that number: **$a - (-b) = a + b$**
- This rule is vital in simplifying algebraic expressions and solving equations accurately.

Common Mistakes to Avoid

- Misinterpreting double negatives leading to incorrect solutions.
- Forgetting to simplify double negatives before solving.

Real-World Applications of Such Problems

Solving equations like the one discussed has practical applications beyond math homework. Examples include:

- **Financial calculations:** Calculating net gain or loss after discounts or charges.
- **Temperature changes:** Understanding temperature drops or rises over time.
- **Physics:** Computing displacement when negative values represent direction.

Understanding how to manipulate negative numbers and solve for unknowns is an essential skill in various fields.

Summary and Conclusion

In conclusion, the problem "When negative five is subtracted from a number, the result is 10" involves translating a word problem into an algebraic equation and solving for the unknown. The steps are straightforward:

1. Recognize that "minus negative five" means adding five.
2. Simplify the equation to $x + 5 = 10$.
3. Subtract 5 from both sides to find $x = 5$.
4. Verify the answer by substitution.

The correct answer is option C) 5. This problem exemplifies fundamental algebra principles involving negative numbers and provides a solid foundation for tackling more complex equations.

Additional Tips for Solving Similar Problems

- Always carefully interpret the language of the problem.
- Remember that subtracting a negative is equivalent to addition.
- Keep your work organized to avoid mistakes.
- Verify your solution by substituting back into the original equation.

By mastering these concepts, you'll become more confident in solving algebraic problems involving negative numbers, paving the way for success in mathematics and related fields.

Keywords for SEO Optimization:

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- Find the unknown number
- Basic algebra practice
- Algebra problem solutions
- Subtracting negative numbers
- Math word problems
- Algebra tips and tricks
- Understanding negatives in math
- Math problem solving steps

Frequently Asked Questions

What is the value of the number if subtracting negative five from it results in 10?

The number is 15.

How do you set up the equation for 'When negative five is subtracted from a number, the result is 10'?

The equation is $x - (-5) = 10$.

What is the solution to $x - (-5) = 10$?

Simplify to $x + 5 = 10$, then subtract 5 to find $x = 5$.

Is the correct answer option for the number 15?

Yes, option B) 15 is correct.

What is the difference between subtracting negative five and adding five?

Subtracting negative five is equivalent to adding five, due to double negatives.

Why is the answer 15 when negative five is subtracted from the number to get 10?

Because $x - (-5) = 10$ simplifies to $x + 5 = 10$, so $x = 15$.

Can the answer be -5 or -15?

No, because substituting these values does not satisfy the equation.

What are the key steps to solve this type of problem?

Set up the equation, simplify, and solve for the variable.

What is the correct answer choice for the number in this problem?

Option B) 15.

How does understanding negative numbers help solve this problem?

It clarifies how subtracting a negative number equates to adding, facilitating correct solution steps.

Additional Resources

Understanding the Problem: When Negative Five Is Subtracted From a Number, the Result Is 10

Mathematical problems often seem straightforward at first glance but can reveal layers of complexity upon closer examination. The given problem—"When negative five is subtracted from a number, the result is 10"—serves as an excellent example to explore fundamental algebraic concepts, problem-solving strategies, and the importance of precise interpretation in mathematics.

In this comprehensive review, we'll dissect this problem from multiple angles, clarify key mathematical principles involved, and explore the reasoning behind each potential answer choice, ultimately leading to a clear understanding of how to arrive at the correct solution.

Deciphering the Problem Statement

Before diving into calculations, it's crucial to fully understand what the problem is asking. The statement is:

> When negative five is subtracted from a number, the result is 10.

This involves a basic algebraic operation—subtraction—and requires identifying an unknown number based on this relationship.

Key points to note:

- The phrase "negative five" refers to the number -5.
- The operation is subtraction, applied to an unknown number (let's denote it as x).
- The result after this operation is 10.

Translating Word Problems into Mathematical Equations

The core skill in solving such problems lies in translating words into algebraic expressions.

Step-by-step translation:

1. Identify the unknown: Let x be the number we're trying to find.
2. Express the operation: "Negative five is subtracted from a number" translates to $x - (-5)$.
3. Set the equation equal to the result: The phrase "the result is 10" indicates the expression equals 10.

Note on the double negative:

The phrase "subtract negative five" can sometimes cause confusion. The key is understanding that:

- "Subtract negative five" mathematically translates to $x - (-5)$.
- Since subtracting a negative is equivalent to adding (because $x - (-5) = x + 5$), this nuance is critical.

Final algebraic expression:

$$\backslash [x - (-5) = 10]$$

which simplifies to:

$$\backslash [x + 5 = 10]$$

Solving the Equation Step-by-Step

Once the algebraic expression has been established, solving for x involves basic algebraic operations.

Step 1: Set up the equation

$$\begin{array}{l} \backslash \\ x + 5 = 10 \\ \backslash \end{array}$$

Step 2: Isolate the variable

Subtract 5 from both sides:

$$\begin{array}{l} \backslash \\ x + 5 - 5 = 10 - 5 \\ \backslash \end{array}$$

$$\begin{array}{l} \backslash \\ x = 5 \\ \backslash \end{array}$$

Result:

$$\begin{array}{l} \backslash \\ x = 5 \\ \backslash \end{array}$$

This indicates that the original number is 5.

Analyzing the Multiple Choice Options

The options provided are:

- A) -5
- B) 15
- C) 5
- D) -15

Based on the calculation above, the correct answer is C) 5.

Let's evaluate each option:

1. Option A) -5

- Substituting into the equation: $(-5 - (-5) = ?)$
- Calculation: $(-5 + 5 = 0)$
- Result: 0, which does not match 10.
- Therefore, not correct.

2. Option B) 15

- Substituting: $(15 - (-5) = ?)$
- Calculation: $(15 + 5 = 20)$
- Result: 20, which does not match 10.
- Therefore, not correct.

3. Option C) 5

- Substituting: $(5 - (-5) = ?)$
- Calculation: $(5 + 5 = 10)$
- Result: 10, which matches the problem statement.
- Therefore, correct.

4. Option D) -15

- Substituting: $(-15 - (-5) = ?)$
- Calculation: $(-15 + 5 = -10)$
- Result: -10, which does not match 10.
- Therefore, not correct.

Conclusion: The only option that satisfies the condition is Option C) 5.

Deep Dive into the Concept of Subtracting Negative Numbers

Understanding the nuances of subtracting negative numbers is crucial in such problems. It's a common point of confusion for students, so let's explore this concept thoroughly.

The Rule:

- Subtracting a negative number is equivalent to adding its positive counterpart.

Mathematically:

$$a - (-b) = a + b$$

\]

Practical Examples:

$$-(10 - (-3)) = 10 + 3 = 13$$

$$-(-7 - (-2)) = -7 + 2 = -5$$

Why does this happen?

This stems from the rules of integers and how negative signs work:

- The negative sign indicates the opposite.
- Subtracting a negative number effectively "cancels out" the subtraction, turning it into addition.

Visual analogy:

Imagine moving along a number line:

- Starting at x , moving $-(-5)$ units (which is $+5$) to the right.

This understanding is vital because misinterpreting "subtract negative five" can lead to incorrect solutions.

Alternative Interpretations and Common Pitfalls

While the straightforward interpretation leads to the answer 5, sometimes students or readers may misread the problem, leading to different solutions.

Potential Misinterpretations:

- Misreading the phrase as adding negative five:
- If one interprets "subtract negative five" as $x + (-5)$, then the expression becomes:

$$x + (-5) = 10$$

- Solving this:

$$x = 10 - (-5) = 10 + 5 = 15$$

- Which corresponds to Option B).

- Incorrect understanding of the phrase:

- If someone interprets "when negative five is subtracted from a number" as $-5 - x$, then:

$$\begin{aligned} & \backslash \\ & -5 - x = 10 \\ & \backslash \end{aligned}$$

- Solving for x :

$$\begin{aligned} & \backslash \\ & -x = 10 + 5 = 15 \\ & \backslash \end{aligned}$$

$$\begin{aligned} & \backslash \\ & x = -15 \\ & \backslash \end{aligned}$$

- Which matches Option D).

However, based on standard English phrasing and mathematical conventions, the original problem's wording indicates that:

> "Negative five is subtracted from a number" = $x - (-5)$

This confirms that the correct interpretation involves adding 5, leading to the solution $x = 5$.

The Importance of Precise Language

Mathematical language must be precise. Slight ambiguities can lead to multiple interpretations, but understanding the standard conventions helps clarify.

Additional Examples and Practice Problems

To solidify understanding, here are some related problems and their solutions.

Example 1:

Problem: When negative three is subtracted from a number, the result is 7. Find the number.

Solution:

- Translate: $(x - (-3) = 7)$
- Simplify: $(x + 3 = 7)$
- Solve: $(x = 7 - 3 = 4)$

Answer: 4

Example 2:

Problem: If subtracting -8 from a number yields 20, what is the number?

Solution:

- $(x - (-8) = 20)$
- Simplify: $(x + 8 = 20)$
- $(x = 20 - 8 = 12)$

Answer: 12

Example 3:

Problem: When a number is increased by 6, the result is 14. What is the number?

Solution:

- $(x + 6 = 14)$
- $(x = 14 - 6 = 8)$

Answer: 8

Summary and Final Thoughts

This problem exemplifies the importance of precise language comprehension in mathematics and reinforces several key concepts:

- Translating word problems into algebraic expressions accurately.
- Understanding the rule that subtracting a negative number is equivalent to addition.
- Methodically solving equations step-by-step.
- Evaluating multiple-choice options critically based on the algebraic solution.

Final conclusion: The correct answer to the problem "When negative five is subtracted from a number, the result is 10" is Option C) 5.

This exercise underscores the importance of carefully parsing problem statements, applying foundational algebraic principles, and verifying solutions against multiple interpretations. Equipped with this understanding, students can approach similar problems with confidence, ensuring they grasp both the procedural and conceptual elements involved.

In Closing

Mathematics is not just about calculations; it's about developing logical reasoning, understanding language nuances, and applying rules systematically. This problem serves as a reminder that even simple-sounding questions can deepen our grasp of fundamental concepts

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