

Select The Correct Answer. The Product Of Two Numbers Is 21. If The First Number Is -3, Which Equation

Select The Correct Answer. The Product Of Two Numbers Is 21. If The First Number Is -3, Which Equation is a common question in algebra that tests your understanding of basic multiplication and equations involving variables. This type of problem helps students develop their skills in forming equations from word problems and solving for unknowns. In this article, we will explore how to approach this question step-by-step, understand the underlying concepts, and identify the correct equation that models the situation accurately.

Understanding the Problem

Before selecting the correct equation, it's essential to understand what the problem is asking. The key points are:

- The product (multiplication result) of two numbers is 21.
- The first number is given as -3.
- You need to find the equation that correctly represents this scenario.

This problem is about translating words into a mathematical expression or equation, which is a foundational skill in algebra.

Breaking Down the Problem

To solve this problem, consider the following steps:

Step 1: Identify the knowns and unknowns

- Known: The first number is -3.
- Unknown: The second number, which we can denote as x .
- The product of the two numbers is 21.

Step 2: Write the relationship as an equation

Since the product of the first number (-3) and the second number (x) equals 21, the algebraic expression is:

$$-3x = 21$$

Step 3: Solve for x (if needed)

To find the second number, solve the equation:

$$x = 21 / (-3) = -7$$

While solving for x is straightforward, the primary goal here is to identify the correct equation that models the problem.

Possible Options for the Equation

In multiple-choice formats, typical options might include:

- A) $x + (-3) = 21$
- B) $(-3) x = 21$
- C) $x - 3 = 21$
- D) $(-3) + x = 21$

The task is to determine which of these options correctly represents the scenario.

Analyzing the Options

Let's analyze each option:

Option A: $x + (-3) = 21$

- This suggests adding the first number (-3) to the second number (x) results in 21.
- However, the problem specifies the product, not the sum, so this is incorrect.

Option B: $(-3) x = 21$

- This indicates the multiplication of -3 and x equals 21.
- This aligns perfectly with the problem statement, as it models the product of the two numbers.

Option C: $x - 3 = 21$

- This suggests subtracting 3 from x equals 21.
- Not related to the original problem about multiplication; thus, incorrect.

Option D: $(-3) + x = 21$

- This suggests adding -3 to x equals 21.
- Again, this deals with addition, not multiplication, so it is not the correct model.

Based on this analysis, Option B is the correct equation.

Understanding the Correct Equation

The correct equation, $-3x = 21$, captures the relationship described in the problem:

- It states that when you multiply the first number (-3) by the second number (x), the result is 21.
- The problem explicitly provides the first number, simplifying the modeling process.

Once the correct equation is identified, solving for x is straightforward:

$$x = 21 / (-3) = -7$$

This means the second number is -7, which makes sense because:

- $(-3)(-7) = 21$, satisfying the initial condition.

Additional Practice Problems

To reinforce understanding, here are some similar problems:

1. Two numbers have a product of 56. If the first number is 8, what is the second number? Write the equation and solve.
2. The product of two numbers is -36. If one of the numbers is 6, what is the other? Write the equation and find the solution.
3. Find the equation if the product of two numbers is 15, and one of the numbers is -3.

Answers:

1. Equation: $8x = 56 \rightarrow x = 56 / 8 = 7$
2. Equation: $6x = -36 \rightarrow x = -36 / 6 = -6$
3. Equation: $-3x = 15 \rightarrow x = 15 / (-3) = -5$

Conclusion

In summary, when given a problem like "The product of two numbers is 21. If the first number is -3, which equation," the key steps involve:

- Recognizing that the problem describes a multiplication relationship.
- Assigning variables to unknown quantities.
- Translating the scenario into a suitable algebraic equation.
- Using logical reasoning to select the correct equation among options.

The correct equation in this case is $-3x = 21$. Understanding how to form and interpret such equations is crucial for mastering algebra and solving similar problems efficiently. Remember, accurately translating words into equations is a vital skill that forms the foundation for more complex mathematical concepts in the future.

Frequently Asked Questions

The product of two numbers is 21. If the first number is -3, what is the second number?

The second number is -7.

Given that the product of two numbers is 21 and the first number is -3, which equation represents the relationship between the two numbers?

$$x(-3) = 21$$

If the first number is -3 and their product is 21, what equation can be used to find the second number?

$$x(-3) = 21$$

What is the value of the second number if the first

number is -3 and their product equals 21?

The second number is -7.

Which option correctly describes the equation for the problem: 'Product of two numbers is 21, first number is -3'?

$$x(-3) = 21$$

Additional Resources

Select The Correct Answer. The Product Of Two Numbers Is 21. If The First Number Is -3, Which Equation?

Understanding mathematical problems that involve basic algebra is an essential skill in both academic and real-world contexts. The question at hand—"Select The Correct Answer. The product of two numbers is 21. If the first number is -3, which equation?"—serves as an excellent example to explore the fundamentals of algebraic expressions, the concept of multiplication, and how to formulate equations based on given conditions. This article aims to dissect this problem comprehensively, providing detailed explanations, step-by-step solutions, and an analytical review of the concepts involved.

Introduction to the Problem

Before diving into the solution, it is crucial to understand the nature of the problem. The key points are:

- The product (multiplication result) of two numbers is 21.
- One of the numbers is explicitly given as -3.
- The objective is to identify the correct algebraic equation that models this scenario.

This type of problem appears frequently in algebra lessons, standardized tests, and practical situations where relationships between variables are expressed through equations. A proper understanding of how to translate words into mathematical expressions is fundamental.

Breaking Down the Problem

Understanding the Product of Two Numbers

The phrase "the product of two numbers" refers to the multiplication of two specific numbers, say, (x) and (y) . The product is the result obtained when these two numbers are multiplied together.

Mathematically, this is expressed as:

$$\begin{aligned} & \left[\right. \\ & x \times y \\ & \left. \right] \end{aligned}$$

or simply:

$$\begin{aligned} & \left[\right. \\ & xy \\ & \left. \right] \end{aligned}$$

The problem states that this product equals 21:

$$\begin{aligned} & \left[\right. \\ & xy = 21 \\ & \left. \right] \end{aligned}$$

Given Value of One Number

The problem specifies that the first number is -3, which can be represented as:

$$\begin{aligned} & \left[\right. \\ & x = -3 \\ & \left. \right] \end{aligned}$$

The task is to find the equation involving the remaining unknown (the second number) that confirms the product equals 21.

Formulating the Equation

Step-by-Step Approach

1. Identify the variables:

Assign a variable to the unknown number, say, y .

2. Use the given value:

Since the first number is known and is -3 , substitute $x = -3$ into the general product equation.

3. Express the relationship:

The product of the two numbers is 21, so:

$$(-3) \times y = 21$$

4. Write the equation:

The resulting algebraic equation that models the situation is:

$$-3y = 21$$

This is the key equation from which the value of y can be determined or analyzed.

Understanding the Equation

The equation:

$$-3y = 21$$

is a linear equation involving one variable (y). It succinctly encodes the problem's core: multiplying -3 by some number y results in 21.

Solving the Equation

To find the second number (y), standard algebraic techniques can be applied:

Step 1: Isolate y

Divide both sides of the equation by (-3) :

$$y = \frac{21}{-3}$$

Step 2: Simplify the fraction

$$y = -7$$

This reveals that the second number is (-7) .

Step 3: Verify the solution

Multiplying the known number (-3) by the found value (-7) :

$$-3 \times -7 = 21$$

which confirms the correctness of the solution.

Alternative Equations and Multiple Choices

In many multiple-choice questions, several equations might be presented, and the task is to select the correct one based on the problem's conditions. For example, possible options could include:

1. $(-3y = 21)$
2. $(3y = 21)$
3. $(-3 + y = 21)$
4. $(-3 \times y = -21)$

Let's analyze each:

- Option 1: $(-3y = 21)$ – Correct, as derived above.
- Option 2: $(3y = 21)$ – Incorrect because the sign differs and would imply

$(y = 7)$, which does not match the initial condition.

- Option 3: $(-3 + y = 21)$ – Incorrect; this is an addition, not a multiplication.

- Option 4: $(-3 \times y = -21)$ – Incorrect; the product is given as 21, so this does not match.

Thus, the correct answer is Option 1.

Understanding Significance and Context

The problem exemplifies several essential algebraic concepts:

- Translating words into equations:

Recognizing that "product" equates to multiplication and "is" signifies equality.

- Sign management:

The negative sign before 3 affects the solution and must be carefully handled during algebraic manipulations.

- Verifying solutions:

Always substitute back into the original equation to confirm correctness.

Real-World Applications

Although the problem appears straightforward, understanding how to formulate and solve such equations has practical implications:

- Financial calculations:

Determining how an initial investment (negative or positive) impacts returns.

- Physics:

Calculating forces or velocities where negative signs indicate direction.

- Engineering:

Modeling systems where variables can have negative or positive values.

Mastery of translating problem statements into algebraic equations enables problem-solving in diverse fields.

Conclusion and Summary

The question "Select The Correct Answer. The Product Of Two Numbers Is 21. If The First Number Is -3, Which Equation?" encapsulates fundamental algebraic principles. The correct equation, derived through logical reasoning and step-by-step algebraic manipulations, is:

$$\begin{aligned} & \backslash[\\ & -3y = 21 \\ & \backslash] \end{aligned}$$

Solving this yields the second number as $\backslash(-7\backslash)$, demonstrating the importance of understanding signs, variables, and the translation of words into equations.

This problem serves as an excellent educational example to reinforce core algebra skills, emphasizing the importance of carefully analyzing given information, formulating accurate equations, and verifying solutions. Whether in academic assessments or real-world problem-solving scenarios, mastering these concepts is vital for developing mathematical literacy and analytical thinking.

In essence, the correct equation modeling the scenario is:
 $\backslash(-3y = 21\backslash)$

and understanding this foundation allows learners to confidently approach more complex algebraic problems in the future.

Select The Correct Answer The Product Of Two Numbers Is 21 If The First Number Is 3 Which Equation

Select The Correct Answer The Product Of Two Numbers Is 21 If The First Number Is 3 Which Equation

Related Articles

- [Select The Correct Text In The Passage. Which Detail In The Text Best Reflects The Central Idea Of The](#)
- [Suppose The Government Increased Spending 15,000,000, That There Is No Crowding Out, And That Marginal](#)
- [The Divine Coincidence Implies That In Response To Achieving A Constant Rate Of Inflation In Line With](#)

[Back to Home](#)