

Which Expressions Represents "2 Less Than The Product Of 5 And A Number"? A) $5n - 2$ B) $5/n - 2$ C) $2 - 5n$ D)

Which Expressions Represents "2 Less Than The Product Of 5 And A Number"? A) $5n - 2$ B) $5/n - 2$ C) $2 - 5n$ D)

Understanding how to translate word problems into algebraic expressions is a fundamental skill in mathematics. When given a phrase such as "2 less than the product of 5 and a number," it's essential to break down the statement carefully to identify the correct algebraic representation. This article aims to guide you through this process, clarify the meaning behind each potential expression, and help you determine which of the options (A, B, C, or D) accurately models the problem.

Deciphering the Phrase: "2 Less Than The Product Of 5 And A Number"

Before selecting the correct algebraic expression, it is vital to understand the meaning of the phrase step-by-step. Let's analyze the key components:

Breaking Down the Phrase

- "The product of 5 and a number": This refers to multiplying 5 by some number, often represented as a variable, typically n .
- "2 less than": This indicates we are subtracting 2 from the previous quantity.

Step-by-Step Interpretation

1. Identify the number:
 - Usually represented as n .
2. Express the product:
 - Multiplying 5 by n gives $5n$.
3. Apply "less than":
 - Since the phrase says "2 less than," the 2 is subtracted from the product.

Putting it all together:

- The expression is (product) - 2.
- The product is $5n$.
- Therefore, the entire expression becomes $5n - 2$.

Analyzing the Options

Given the breakdown, let's examine each provided option in detail.

Option A: $5n - 2$

- Description: This expression directly translates to "5 times n minus 2."
- Interpretation: It matches the step-by-step breakdown:
 - The product of 5 and a number: $5n$
 - Less than by 2: $- 2$
- Conclusion: This option correctly represents the phrase.

Option B: $5/n - 2$

- Description: This expression is "5 divided by n , minus 2."
- Interpretation:
 - The division indicates the reciprocal of the product.
 - It does not match the phrase "product of 5 and a number."
- Conclusion: This option does not correctly model the phrase.

Option C: $2 - 5n$

- Description: "2 minus 5 times n ."
- Interpretation:
 - The order of subtraction is reversed.
 - The phrase indicates subtracting 2 from the product, not the other way around.
- Conclusion: While similar, this expression reverses the order and does not correctly represent the phrase.

Option D: (No expression provided in the original options)

- Note: The given options only include A, B, and C.
- Conclusion: Since options are limited, the best fit based on the analysis is Option A.

Understanding the Correct Expression: Why " $5n - 2$ "?

The Role of Variable Representation

Using n as the variable to represent "a number" is standard in algebra. This allows us to construct expressions in a flexible way that can represent any number.

Why " $5n$ "?

- It signifies "the product of 5 and a number."
- The order of multiplication does not matter in algebra; $5n$ is equivalent to $n \cdot 5$.

Why subtract 2?

- The phrase "less than" indicates subtraction.
- The phrase "2 less than" specifically means subtract 2 from the previous expression.

Complete Expression

- Combining these: $5n - 2$.

Real-World Examples and Applications

Understanding how to translate words into algebraic expressions is useful in many real-life contexts:

Example 1: Shopping Scenario

Suppose a shop charges \$5 per item, and you want to find out how much you pay if you buy n items, then pay \$2 less than the total cost.

- Total cost: $5n$
- Adjusted payment (less 2): $5n - 2$

Example 2: Distance Calculation

Imagine a cyclist travels 5 miles per hour, and after traveling for n hours, they decide to subtract 2 miles from their total distance for some reason (maybe a detour).

- Distance traveled: $5n$
- Adjusted distance: $5n - 2$

Common Mistakes to Avoid

When translating phrases into algebra, some common pitfalls include:

Mistake 1: Reversing the order

- Confusing "less than" with "minus" in the wrong position.
- Example: Writing $2 - 5n$ instead of $5n - 2$.

Mistake 2: Misinterpreting "product"

- Thinking "product of 5 and a number" as division or subtraction.

Mistake 3: Ignoring the variable

- Using numbers only, without the variable n , leading to incomplete expressions.

Summary and Key Takeaways

- The phrase "2 less than the product of 5 and a number" translates to the algebraic expression $5n - 2$.
- Carefully analyzing the words helps in constructing the correct expression.
- The key components are:
 - "Product of 5 and a number" $\rightarrow 5n$.
 - "Less than" $\rightarrow$ subtraction.
 - "2 less than" $\rightarrow$ subtract 2 from the previous expression.
- Always double-check the order of operations and the placement of subtraction when translating phrases.

Conclusion

In summary, the expression that best represents the phrase "2 less than the product of 5 and a number" is Option A: $5n - 2$. This expression correctly conveys the multiplication of 5 and n , followed by subtracting 2, aligning perfectly with the phrase's meaning.

Being able to accurately convert word problems into algebraic expressions is a valuable skill that enhances problem-solving and mathematical reasoning. Practice with similar phrases will improve your ability to interpret and translate everyday language into precise algebraic forms, empowering you to tackle more complex problems effectively.

Additional Resources for Learning Algebraic Expressions

- Algebra Basics: Understanding variables and expressions.
- Translating Word Problems: Step-by-step guides.
- Practice Exercises:
 - Write algebraic expressions for various phrases.
 - Identify errors in given expressions.
- Online Tools:
 - Algebra calculators for verifying expressions.
 - Interactive quizzes to test understanding.

By mastering these concepts, you'll develop confidence in translating real-world situations into mathematical expressions, a fundamental skill in mathematics and beyond.

Frequently Asked Questions

Which algebraic expression represents '2 less than the product of 5 and a number'?

A) $5n - 2$

What is the correct expression for '2 less than the product of 5 and a number'?

A) $5n - 2$

In the phrase '2 less than the product of 5 and a number,' which expression correctly models this statement?

A) $5n - 2$

Among the options, which expression shows '2 less than the product of 5 and a number'?

A) $5n - 2$

Which of the following expressions indicates '2 less than the product of 5 and a number'?

A) $5n - 2$

Additional Resources

Which Expressions Represents "2 Less Than The Product Of 5 And A Number"? This question is a common problem in algebra that tests understanding of how to translate verbal phrases into algebraic expressions. When dealing with word problems, especially those involving quantities like "less than," "more than," or "times," it is essential to carefully interpret the language and convert it into a mathematical expression accurately. In this case, the phrase "2 less than the product of 5 and a number" requires a precise understanding of the relationships among the components: the number, the multiplication, and the subtraction.

The options provided—A) $5n - 2$, B) $5/n - 2$, C) $2 - 5n$ —are all algebraic expressions, but only one correctly represents the given phrase. To determine which expression is correct, we need to analyze the phrase step by step, interpreting each part into an algebraic component, and then constructing the expression accordingly.

Understanding the Phrase: "2 Less Than The Product Of 5 And A Number"

Breaking Down the Phrase

The phrase contains several key elements:

- "The product of 5 and a number": This indicates multiplication between 5 and some variable representing a number, often denoted as n , x , or y .
- "2 less than": This specifies a subtraction of 2 from the previous quantity.

To translate this into an algebraic expression, it helps to understand the order of operations and the structure of the phrase.

Step-by-Step Interpretation

1. Identify the main quantity: The "product of 5 and a number" suggests multiplying 5 by a variable (say, n). So, the core expression is $5n$.
2. Incorporate "less than": The phrase "2 less than" indicates that 2 should be subtracted from the main quantity.
3. Combine these parts: Therefore, the full expression becomes "the product of 5 and n , minus 2," which translates to $5n - 2$.

Analyzing Each Option

Option A: $5n - 2$

This expression directly corresponds to the step-by-step interpretation:

- $5n$: the product of 5 and the number n .
- $- 2$: subtracting 2 from the product.

Features:

- Correctly models "2 less than the product of 5 and a number."
- Simple and straightforward algebraic form.

Pros:

- Accurately reflects the phrase's meaning.
- Easy to evaluate for different values of n .

Cons:

- Assumes the variable n is understood to represent "a number"—which is standard in algebra.

Option B: $5/n - 2$

This expression means "5 divided by n , minus 2."

Features:

- Divides 5 by n , then subtracts 2.

Pros:

- Correct if the phrase were "2 less than the quotient of 5 and a number."

Cons:

- Does not match the original phrase, which involves the product (multiplication), not division.

Option C: $2 - 5n$

This expression implies subtracting 5 times n from 2.

Features:

- Reverses the order of the subtraction compared to the original phrase.

Pros:

- Correct if the phrase were "the difference between 2 and 5 times a number."

Cons:

- Does not accurately reflect "2 less than the product of 5 and a number," since the order matters in subtraction.

Summary of the options:

Option	Expression	Represents	Correct for the phrase?
A	$5n - 2$	"2 less than the product of 5 and a number"	Yes
B	$5/n - 2$	"2 less than the quotient of 5 and a number"	No
C	$2 - 5n$	"The difference between 2 and 5 times a number"	No

Conclusion: The Correct Expression

Based on the detailed analysis, Option A: $5n - 2$ is the expression that accurately represents the phrase "2 less than the product of 5 and a number." It captures the core idea: multiplying 5 by the number, then subtracting 2.

Why is Option A Correct? An In-Depth Explanation

Step-by-step Reasoning

- The phrase "product of 5 and a number" directly translates to $5n$.
- The phrase "less than" indicates subtraction, meaning we need to subtract 2 from this product.
- Combining these, the expression becomes $5n - 2$.

Mathematical Significance

- This expression respects the order of operations (multiplication before subtraction).
- It is algebraically sound and matches the language precisely.
- It allows for easy substitution of values for n to compute specific results.

Real-world Analogy

Imagine you have 5 times some quantity n , and you want to find out "what is 2 less than that amount?" You would first calculate $5n$, then subtract 2, giving $5n - 2$, which is exactly what Option A represents.

Additional Considerations in Algebraic Translations

Common Mistakes

- Confusing "less than" with "minus" in the wrong order (for example, writing $2 - 5n$ instead of $5n - 2$).
- Misinterpreting "product" as division or addition.
- Forgetting to include the variable for "a number," which is essential for the expression.

Tips for Translating Verbal Phrases into Algebra

- Identify key phrases: "product" indicates multiplication, "less than" indicates subtraction.
- Assign variables to unknown quantities.
- Pay attention to the order of words, especially with subtraction.
- Break complex phrases into smaller parts and translate step-by-step.

Final Thoughts

Understanding how to translate words into algebraic expressions is fundamental in algebra and problem-solving. The phrase "2 less than the product of 5 and a number" is a classic example that emphasizes careful reading and interpretation. Option A, $5n - 2$, precisely captures this meaning, making it the correct choice among the options provided.

Mastery of such translations enhances one's ability to solve real-world problems, relate verbal descriptions to mathematical models, and develop a deeper understanding of algebraic concepts. Whether you're a student preparing for exams or a learner seeking to improve your algebra skills, recognizing the significance of language and structure in these problems is crucial for success.

In conclusion, the expression $5n - 2$ (Option A) faithfully represents the phrase "2 less than the product of 5 and a number," making it the correct choice for this problem.

Which Expressions Represents 2 Less Than The Product Of 5 And A Number A $5n - 2$ B $5n + 2$ C $2 - 5n$ D $2 + 5n$

Which Expressions Represents 2 Less Than The Product Of 5 And A Number A $5n - 2$ B $5n + 2$ C $2 - 5n$ D $2 + 5n$

Related Articles

- [Which Factor Most Accurately Describes The Statement "'survival Of The Fittest'" In Relation To Natural](#)
- [Which Detail Reveals Prince Henry's Motivation For Not Showing His Sadness About His Father's Illness?O](#)
- [4. Suppose That We Have Free Segments With Sizes: 6, 17, 25, 14, And 19, Shown As Below. Place A Program](#)

[Back to Home](#)