

Twenty-seven Minus Of A Number (x) Is Not More Than 36. What Is The Number?

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Understanding the Problem Statement

The problem posed is a mathematical inequality involving a variable, represented as:

> Twenty-seven minus of a number (x) is not more than 36. What is the number?

This statement is a common type of inequality problem that requires translating a verbal statement into a mathematical expression and then solving for the variable.

Breaking Down the Statement

Before solving, it's essential to understand the language used:

- "Twenty-seven minus of a number" translates to the expression $27 - x$.
- "Is not more than 36" indicates the inequality less than or equal to 36.

Therefore, the mathematical inequality is:

$$27 - x \leq 36$$

This inequality sets the foundation for finding the possible values of x that satisfy the condition.

Converting Verbal Statements into Mathematical Inequalities

To ensure clarity, here's a step-by-step process:

1. Identify the key parts of the statement:

- "Twenty-seven minus of a number" $\rightarrow 27 - x$
- "Is not more than" $\rightarrow$ less than or equal to ($\leq$)
- "36" $\rightarrow$ the numerical value

2. Write the inequality:

$$27 - x \leq 36$$

3. The goal is to find all x values satisfying this inequality.

Solving the Inequality

Let's proceed with solving $27 - x \leq 36$.

Step 1: Isolate x

Subtract 27 from both sides:

$$27 - x \leq 36$$

$$\Rightarrow 27 - 27 - x \leq 36 - 27$$

$$\Rightarrow -x \leq 9$$

Step 2: Multiply or divide both sides by -1 to solve for x

Remember, multiplying or dividing both sides of an inequality by a negative number reverses the inequality sign:

$$-x \leq 9$$

$$\Rightarrow x \geq -9$$

Conclusion: The solution set is $x \geq -9$.

Interpreting the Solution

The inequality $x \geq -9$ indicates that x can be any real number greater than or equal to -9.

This solution set includes:

- $x = -9$
- $x = 0$
- $x = 10$
- $x = 42$
- And all real numbers greater than -9 .

Analyzing the Answer Choices

The options provided are:

- A. $x > 42$
- B. $x - 6$
- C. x

Let's interpret each:

1. Option A: $x > 42$

This means x is greater than 42. Our solution $x \geq -9$ includes values less than 42, so $x > 42$ is just a subset of the solution set, but not the complete answer.

2. Option B: $x - 6$

This appears incomplete as an expression. If it refers to the expression $x - 6$, it's not a direct answer to the question but might be part of a larger expression or a distractor.

3. Option C: x

Simply x , which is the variable itself, does not specify the inequality or any bounds.

Clarifying the Correct Choice

Given the options, none directly state $x \geq -9$. However, analyzing the options:

- Since the inequality simplifies to $x \geq -9$, any answer choice related to x should reflect that.
- Option A ($x > 42$) is a subset of the solution set but does not encompass all solutions.
- Option B ($x - 6$) is incomplete on its own.

- Option C (x) is just the variable. If the question is asking "What is the number?", then x could be any number satisfying the inequality, i.e., $x \geq -9$.

Therefore, the most appropriate answer from the options, considering the problem's context, is option C: x.

Practical Implications and Real-Life Applications

Understanding inequalities like $27 - x \leq 36$ isn't just a theoretical exercise. Such inequalities are fundamental in various real-world scenarios, such as:

- Budget constraints
- Speed limits
- Manufacturing tolerances
- Scientific measurements

For example, suppose a company wants to ensure that the difference between two measurements does not exceed a certain limit. Solving inequalities helps determine the acceptable range of values.

Step-by-Step Summary of the Solution Process

To recap, here's the concise process used to solve the problem:

1. Identify the verbal statement and translate it into an algebraic inequality.
2. Express: "Twenty-seven minus of a number" $\rightarrow 27 - x$.
3. Interpret "is not more than 36" as ≤ 36 .
4. Write the inequality: $27 - x \leq 36$.
5. Solve for x: subtract 27 from both sides to get $-x \leq 9$.
6. Multiply both sides by -1, reversing the inequality: $x \geq -9$.
7. Interpret the solution: x can be any number greater than or equal to -9.

Conclusion

In summary, the inequality derived from the problem statement is $27 - x \leq 36$, which simplifies to $x \geq -9$. The solution set includes all real numbers greater than or equal to -9.

When analyzing multiple-choice options, the answer that best aligns with this solution is x itself, as it represents the variable in question, and the inequality defines the bounds for x .

Understanding such inequalities enhances problem-solving skills in algebra and provides a foundation for tackling more complex mathematical problems and real-world applications involving constraints and limits.

Additional Tips for Solving Similar Inequalities

- Always carefully translate verbal statements into algebraic expressions.
- Pay attention to words like "not more than" ($\leq$), "more than" ($>$), "less than" ($<$), and "at least" ($\geq$).
- When multiplying or dividing both sides of an inequality by a negative number, remember to reverse the inequality sign.
- Check your solution by substituting boundary values into the original inequality to verify correctness.

If you need further clarification or practice problems on inequalities or related algebra topics, feel free to ask!

Frequently Asked Questions

What is the inequality representing 'Twenty-seven minus of a number (x) is not more than 36'?

The inequality is $27 - x \leq 36$.

How do you solve the inequality $27 - x \leq 36$ to find the value of x ?

Subtract 27 from both sides: $-x \leq 9$, then multiply both sides by -1 (and reverse the inequality): $x \geq -9$.

What is the solution set for the inequality $27 - x \leq 36$?

The solution set is all real numbers x such that $x \geq -9$.

Based on the options, which represents the correct value or range for x ?

Option D: $x \geq -9$ (not explicitly listed, but derived from the inequality).

Given the options A. $x > 42$, B. $x - 6$, C. x , which best fits the solution for the inequality?

Option C: x ; since the solution is $x \geq -9$, this includes many values, but none of the options exactly match. The closest understanding is that x can be any number greater than or equal to -9 .

Additional Resources

Mathematical Inequality Analysis: Understanding "Twenty-seven Minus Of A Number (x) Is Not More Than 36"

Introduction

Mathematics often presents us with real-world problems that require precise interpretation and problem-solving skills. One such problem is understanding inequalities involving unknown quantities, like the statement: "Twenty-seven minus of a number (x) is not more than 36." This phrase, seemingly simple, opens the door to exploring how algebraic expressions are formulated, interpreted, and solved.

In this article, we will dissect this problem thoroughly. We will interpret the statement correctly, translate it into an algebraic inequality, explore the solution step-by-step, and analyze the given options to determine the correct answer. This comprehensive approach aims to clarify the logical process behind solving inequalities and enhance your mathematical reasoning.

Understanding the Statement

The phrase "Twenty-seven minus of a number (x) is not more than 36" involves several key components:

- "Twenty-seven minus of a number (x)" suggests an expression where 27 is subtracted from x , which can be written as $x - 27$.
- "Is not more than 36" indicates a comparison: the expression $x - 27$ is less than or equal to 36.

Note: The phrase "not more than" is a common English way of expressing the inequality "less than or equal to." It means the value is at most 36, but possibly less.

Translating to an Algebraic Inequality

Given the above interpretation, the statement can be translated into the inequality:

$$\begin{aligned} & \backslash[\\ & x - 27 \leq 36 \\ & \backslash] \end{aligned}$$

This inequality states that the value of $x - 27$ is less than or equal to 36.

Step-by-Step Solution

Let's solve for x to determine the range of possible values:

1. Start with the inequality:

$$\begin{aligned} & \backslash[\\ & x - 27 \leq 36 \\ & \backslash] \end{aligned}$$

2. Add 27 to both sides to isolate x :

$$\begin{aligned} & \backslash[\\ & x - 27 + 27 \leq 36 + 27 \\ & \backslash] \\ & \backslash[\\ & x \leq 63 \\ & \backslash] \end{aligned}$$

Result: The solution indicates that x must be less than or equal to 63.

Interpreting the Solution

The inequality $x \leq 63$ means:

- Any number less than or equal to 63 satisfies the original statement.
- The problem asks specifically "What is the number?", which implies identifying the specific value or the set of possible values.

In practical terms, since the problem presents multiple-choice options, it is essential to analyze each option in relation to the inequality.

Analyzing the Provided Options

The options given are:

- A. $x > 42$
- B. $x - 6$
- C. x

Let's review each option carefully:

Option A: $x > 42$

- Interpretation: The statement suggests x is greater than 42.
- Relation to solution: Since $x \leq 63$, the possibility $x > 42$ is valid for many values within the solution set.
- Implication: If the question is asking for the possible values of x based on the inequality, $x > 42$ is compatible with the solution $x \leq 63$.

However, the original question seems to be asking for the specific value of x based on the inequality, not just a range.

Option B: $x - 6$

- Interpretation: This is an expression, not a direct statement about x .
- Analysis: Without an inequality sign or context, $x - 6$ by itself doesn't specify a condition; it's incomplete.
- Conclusion: Likely not the correct answer since it does not directly relate to the solution.

Option C: x

- Interpretation: Again, just x , which is the variable representing the number.
- Analysis: The question might be asking for the value of x satisfying the inequality.
- Relation to solution: Since $x \leq 63$, x can be any number less than or equal to 63, but the options don't specify a particular value.

Clarifying the Correct Choice

Given the options, it appears the question is asking: "What is the value of x ?" based on the inequality $x \leq 63$.

- Option A ($x > 42$): Suggests that x is greater than 42, which is a subset of all possible

solutions ($x \leq 63$). But the inequality allows x to be less than or equal to 63, including values less than 42.

- Option B ($x - 6$): Is incomplete without context and seems unlikely to be the answer.
- Option C (x): Is simply the variable itself, not a specific value.

Final Interpretation and Conclusion

Given the problem's wording and the options:

- The core inequality derived is $x \leq 63$.
- The phrase "Twenty-seven minus of a number (x) is not more than 36" translates to $x - 27 \leq 36$.
- The solution indicates $x \leq 63$.

Therefore, the most accurate understanding is:

- x can be any real number less than or equal to 63.
- Among the options, Option A: $x > 42$ is a valid subset of solutions but not the complete answer.
- Since the question asks "What is the number?", and options seem to refer to possible values or expressions, the best choice aligning with the inequality is:

Answer: x

Because x is the variable representing the number satisfying the inequality, and no specific value is assigned, the answer most consistent with the problem is:

> Option C: x

Broader Implications and Learning Points

This problem highlights several important aspects of algebra and inequalities:

- Interpreting Word Problems: Carefully translating phrase-based statements into algebraic expressions is crucial.
- Understanding "Not More Than": This phrase is equivalent to "less than or equal to," a common phrase in inequalities.
- Solving Inequalities: Isolating the variable involves inverse operations, such as addition or subtraction.
- Range of Solutions: Recognizing the set of all possible solutions helps in understanding the problem's scope.
- Multiple Choice Analysis: Carefully analyzing options ensures correct interpretation, especially when options represent expressions or ranges.

Summary

Step	Description	Result
1	Interpret the phrase	"Twenty-seven minus of a number (x)" $\rightarrow x - 27$
2	Convert to inequality	$x - 27 \leq 36$
3	Solve for x	$x \leq 63$
4	Analyze options	x is the variable; options involve ranges or expressions
5	Final conclusion	The number x is any value less than or equal to 63; the most fitting answer is x

In conclusion, the number x satisfying the statement "Twenty-seven minus of a number (x) is not more than 36" is any x less than or equal to 63. When considering the options provided, x (Option C) is the most appropriate choice, representing the variable itself and encompassing all solutions.

Final Thoughts

Understanding inequalities is fundamental in algebra and helps in solving a wide range of mathematical and real-world problems. By carefully translating words into algebraic expressions and methodically solving, one can develop a solid foundation in mathematical reasoning. This problem serves as a valuable example of how language, logic, and algebra interconnect, reinforcing the importance of precise interpretation in mathematics.

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