

how to solve $2x + 3 = 6$

Student Question: how to solve $2x + 3 = 6$

Questions and Answers: [{ 'question': 'What is your goal when solving an equation like this?', 'answer': 'To isolate the variable 'x' on one side of the equation.' }, { 'question': 'What operation is currently being applied to the variable 'x' along with 3 and can be removed in order to help achieve the goal?', 'answer': 'Addition of '3' is being applied to the term '2x'.' }, { 'question': 'What is the inverse operation of addition?', 'answer': 'Subtraction' }, { 'question': 'What should you subtract from both sides of the equation to isolate the term with 'x'?', 'answer': 'Subtract 3 from both sides of the equation.' }, { 'question': 'After subtracting 3 from both sides, what does the equation look like?', 'answer': ' $2x = 3$ ' }, { 'question': 'What operation is currently being applied to the variable 'x'?', 'answer': 'Multiplication by 2' }, { 'question': 'What is the inverse operation of multiplication?', 'answer': 'Division' }, { 'question': 'What do you need to do to both sides of the equation to solve for x?', 'answer': 'Divide both sides by 2' }, { 'question': 'What is the final answer for x?', 'answer': ' $x = 1.5$ or $x = 3/2$ ' }]

Follow-up Question: Alright, let's delve a bit deeper: "What is your goal when trying to solve an equation like this?"

Expected Answer: To isolate the variable 'x' on one side of the equation.

isolate x in the one side of the equation

{ 'result': 'correct' }

is_correct: True

Correct answer! Moving to the next question.

Follow-up Question: What operation involves 'x' and 3 that we could trim down?

Expected Answer: Addition of '3' is being applied to the term '2x'.

addition of 3

{ 'result': 'correct' }

is_correct: True

Correct answer! Moving to the next question.

Follow-up Question: What is the arithmetic method that reverses the process of addition?

Expected Answer: Subtraction

subtraction

{ 'result': 'correct' }

is_correct: True

Correct answer! Moving to the next question.

Follow-up Question: "What step could we take to isolate 'x' in this equation? This will help us find the value of 'x'."

Expected Answer: Subtract 3 from both sides of the equation.

don't know

{ 'result': 'incorrect' }

is_correct: False

Incorrect. Try again.

subtract 3 from both sides

{'result': 'correct'}

is_correct: True

Correct answer! Moving to the next question.

Follow-up Question: "What does the new equation resemble after subtracting 3 from both sides?"

Expected Answer: $2x = 3$

$2x = 3$

{'result': 'correct'}

is_correct: True

Correct answer! Moving to the next question.

Follow-up Question: In the given context, could you explain the current operation on 'x'?

Expected Answer: Multiplication by 2

multiplication by 2

{'result': 'correct'}

is_correct: True

Correct answer! Moving to the next question.

Follow-up Question: "I'm curious, can you tell me which operation serves as the inverse to multiplication?"

Expected Answer: Division

division

{'result': 'correct'}

is_correct: True

Correct answer! Moving to the next question.

Follow-up Question: To solve for x, which operation would you apply equally to both sides of the equation?

Expected Answer: Divide both sides by 2

divide both side by 2

{'result': 'correct'}

is_correct: True

Correct answer! Moving to the next question.

Follow-up Question: Could you show me how you'd solve for x in this equation?

Expected Answer: $x = 1.5$ or $x = 3/2$

dont know

{'result': 'incorrect'}

is_correct: False

Incorrect. Try again.

$x = 3/2$

{'result': 'correct'}

is_correct: True

Correct answer! Moving to the next question.