

I NEED HELP WILL GIVE BRAINLIEST $3.7(-83x-3) = 3.7(7x-30)$

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ARE YOU STRUGGLING TO SOLVE THE ALGEBRAIC EQUATION $3.7(-83x - 3) = 3.7(7x - 30)$? IF SO, YOU'RE NOT ALONE! MANY STUDENTS FIND SOLVING EQUATIONS WITH DECIMALS AND DISTRIBUTION CHALLENGING AT FIRST. THIS COMPREHENSIVE GUIDE WILL WALK YOU THROUGH THE STEP-BY-STEP PROCESS TO SOLVE THIS EQUATION EFFECTIVELY, CLARIFY COMMON MISCONCEPTIONS, AND PROVIDE HELPFUL TIPS TO IMPROVE YOUR ALGEBRA SKILLS. WHETHER YOU'RE PREPARING FOR A TEST OR JUST LOOKING TO STRENGTHEN YOUR UNDERSTANDING OF ALGEBRA, THIS ARTICLE AIMS TO MAKE COMPLEX CONCEPTS ACCESSIBLE AND STRAIGHTFORWARD.

UNDERSTANDING THE EQUATION

BEFORE DIVING INTO SOLUTIONS, IT'S ESSENTIAL TO UNDERSTAND THE STRUCTURE AND COMPONENTS OF THE EQUATION:

$$3.7(-83x - 3) = 3.7(7x - 30)$$

THIS IS A LINEAR EQUATION INVOLVING DECIMALS, VARIABLES, AND PARENTHESES. THE KEY STEPS INVOLVE:

- DISTRIBUTIVE PROPERTY
- COMBINING LIKE TERMS
- ISOLATING THE VARIABLE X

STEP-BY-STEP SOLUTION PROCESS

STEP 1: APPLY THE DISTRIBUTIVE PROPERTY

THE DISTRIBUTIVE PROPERTY STATES THAT:

$$A(B + C) = AB + AC$$

APPLYING THIS TO BOTH SIDES:

- LEFT SIDE: $3.7 \cdot -83x + 3.7 \cdot -3$
- RIGHT SIDE: $3.7 \cdot 7x + 3.7 \cdot -30$

CALCULATIONS:

- LEFT SIDE: $-83 \cdot 3.7x + (-3) \cdot 3.7$
- RIGHT SIDE: $7 \cdot 3.7x + (-30) \cdot 3.7$

COMPUTE EACH:

- $-83 \cdot 3.7x = -307.1x$
- $-3 \cdot 3.7 = -11.1$

$$- 73.7x = 25.9x$$

$$-303.7 = -111$$

So, THE EQUATION BECOMES:

$$-307.1x - 11.1 = 25.9x - 111$$

STEP 2: MOVE ALL VARIABLE TERMS TO ONE SIDE

TO GATHER X TERMS ON ONE SIDE, ADD 307.1x TO BOTH SIDES:

$$-307.1x + 307.1x - 11.1 = 25.9x + 307.1x - 111$$

SIMPLIFIES TO:

$$-11.1 = (25.9 + 307.1)x - 111$$

CALCULATE THE SUM OF COEFFICIENTS:

$$-25.9 + 307.1 = 333$$

NOW THE EQUATION:

$$-11.1 = 333x - 111$$

STEP 3: ISOLATE THE VARIABLE TERM

ADD 111 TO BOTH SIDES TO MOVE CONSTANTS TO ONE SIDE:

$$-11.1 + 111 = 333x - 111 + 111$$

SIMPLIFIES TO:

$$99.9 = 333x$$

STEP 4: SOLVE FOR X

DIVIDE BOTH SIDES BY 333:

$$x = 99.9 / 333$$

CALCULATE THE DIVISION:

$$-99.9 / 333 \approx 0.3$$

RESULT:

$$x \approx 0.3$$

FINAL ANSWER AND INTERPRETATION

THE APPROXIMATE SOLUTION TO THE EQUATION $3.7(-83x - 3) = 3.7(7x - 30)$ IS:

$$x \approx 0.3$$

THIS MEANS THAT SUBSTITUTING x WITH APPROXIMATELY 0.3 INTO THE ORIGINAL EQUATION WILL SATISFY IT. FOR EXACTNESS, THE FRACTION FORM IS:

$$x = 99.9 / 333$$

WHICH SIMPLIFIES TO:

$$x = 33 / 111 = 1 / 3$$

SO, THE EXACT SOLUTION IS:

$$x = 1/3$$

ADDITIONAL TIPS FOR SOLVING SIMILAR EQUATIONS

TO BUILD CONFIDENCE IN SOLVING EQUATIONS LIKE THIS, CONSIDER THE FOLLOWING TIPS:

- ALWAYS DISTRIBUTE CAREFULLY: WHEN PARENTHESES ARE INVOLVED, APPLY THE DISTRIBUTIVE PROPERTY FIRST.
- KEEP TRACK OF DECIMAL CALCULATIONS: USE A CALCULATOR FOR PRECISE DECIMAL MULTIPLICATION AND DIVISION.
- COMBINE LIKE TERMS EARLY: SIMPLIFY BOTH SIDES TO MAKE THE EQUATION MORE MANAGEABLE.
- CHECK SOLUTIONS: SUBSTITUTE YOUR ANSWER BACK INTO THE ORIGINAL EQUATION TO VERIFY CORRECTNESS.
- UNDERSTAND FRACTIONS AND DECIMALS: SOMETIMES, EXPRESSING DECIMALS AS FRACTIONS SIMPLIFIES CALCULATIONS AND PROVIDES EXACT ANSWERS.

COMMON MISTAKES TO AVOID

- IGNORING THE DISTRIBUTIVE PROPERTY: FORGETTING TO DISTRIBUTE THE NUMBERS ACROSS PARENTHESES LEADS TO INCORRECT SOLUTIONS.
- MIXING OPERATIONS: MIXING ADDITION/SUBTRACTION WITH MULTIPLICATION/DIVISION WITHOUT PROPER ORDER CAN CAUSE ERRORS.
- INCORRECTLY SIMPLIFYING FRACTIONS: ALWAYS LOOK FOR OPPORTUNITIES TO REDUCE FRACTIONS TO SIMPLEST FORM.
- NOT VERIFYING SOLUTIONS: ALWAYS SUBSTITUTE YOUR SOLUTION INTO THE ORIGINAL EQUATION TO ENSURE IT WORKS.

PRACTICE PROBLEMS FOR MASTERY

TO REINFORCE YOUR UNDERSTANDING, TRY SOLVING THESE SIMILAR EQUATIONS:

- $2.5(4x + 5) = 2.5(10x - 15)$
- $5.2(-6x + 4) = 5.2(3x + 8)$

$$- 1.8(9x - 7) = 1.8(3x + 2)$$

REMEMBER TO FOLLOW THE STEPS: DISTRIBUTE, COMBINE LIKE TERMS, ISOLATE THE VARIABLE, AND CHECK YOUR WORK.

CONCLUSION

SOLVING ALGEBRAIC EQUATIONS WITH DECIMALS MAY SEEM DAUNTING AT FIRST, BUT WITH A SYSTEMATIC APPROACH, IT BECOMES MANAGEABLE. THE KEY STEPS INVOLVE DISTRIBUTING, COMBINING LIKE TERMS, ISOLATING THE VARIABLE, AND VERIFYING YOUR SOLUTION. IN THE SPECIFIC CASE OF $3.7(-83x - 3) = 3.7(7x - 30)$, THE SOLUTION IS $x = 1/3$ OR APPROXIMATELY $x \approx 0.3$. PRACTICE REGULARLY, DOUBLE-CHECK YOUR WORK, AND YOU'LL IMPROVE YOUR ALGEBRA SKILLS OVER TIME. REMEMBER, UNDERSTANDING THE PROCESS IS MORE IMPORTANT THAN JUST ARRIVING AT THE ANSWER, SO TAKE YOUR TIME AND PRACTICE THESE STEPS ON VARIOUS PROBLEMS TO BUILD CONFIDENCE.

KEYWORDS: ALGEBRA, SOLVE EQUATIONS, DISTRIBUTE, COMBINE LIKE TERMS, DECIMALS, LINEAR EQUATIONS, SOLVING FOR X, ALGEBRA TIPS, PRACTICE PROBLEMS

FREQUENTLY ASKED QUESTIONS

HOW DO I SOLVE THE EQUATION $3.7(-83x - 3) = 3.7(7x - 30)$?

FIRST, DIVIDE BOTH SIDES BY 3.7 TO SIMPLIFY: $-83x - 3 = 7x - 30$. THEN, COMBINE LIKE TERMS: $-83x - 7x = -30 + 3$, LEADING TO $-90x = -27$. FINALLY, DIVIDE BOTH SIDES BY -90: $x = (-27)/(-90) = 27/90 = 3/10$.

WHAT IS THE VALUE OF X IN THE EQUATION $3.7(-83x - 3) = 3.7(7x - 30)$?

THE VALUE OF X IS $3/10$ OR 0.3, OBTAINED BY SIMPLIFYING AND SOLVING THE EQUATION AS SHOWN IN THE PREVIOUS STEP.

WHY CAN I DIVIDE BOTH SIDES OF THE EQUATION BY 3.7 IN THIS PROBLEM?

BECAUSE 3.7 IS A NON-ZERO NUMBER, DIVIDING BOTH SIDES BY IT MAINTAINS THE EQUALITY AND SIMPLIFIES THE EQUATION, MAKING IT EASIER TO SOLVE.

ARE THERE ANY COMMON MISTAKES TO WATCH OUT FOR WHEN SOLVING THIS TYPE OF EQUATION?

YES, COMMON MISTAKES INCLUDE FORGETTING TO DIVIDE BOTH SIDES BY 3.7, MIXING UP SIGNS WHEN REARRANGING TERMS, OR INCORRECTLY COMBINING LIKE TERMS. DOUBLE-CHECK EACH STEP CAREFULLY.

CAN I VERIFY THE SOLUTION $x = 3/10$ IN THE ORIGINAL EQUATION?

YES, SUBSTITUTE $x = 3/10$ BACK INTO THE ORIGINAL EQUATION TO VERIFY. BOTH SIDES SHOULD EVALUATE TO THE SAME VALUE, CONFIRMING THE SOLUTION IS CORRECT.

WHAT DOES THIS EQUATION TELL US ABOUT THE RELATIONSHIP BETWEEN THE

EXPRESSIONS ON BOTH SIDES?

IT SHOWS THAT THE SCALED EXPRESSIONS $-83x - 3$ AND $7x - 30$ ARE EQUAL WHEN MULTIPLIED BY 3.7 , AND SOLVING HELPS FIND THE SPECIFIC VALUE OF x THAT MAKES THIS TRUE.

IS SOLVING EQUATIONS LIKE $3.7(-83x - 3) = 3.7(7x - 30)$ SIMILAR TO SOLVING EQUATIONS WITHOUT COEFFICIENTS?

YES, THE PROCESS IS SIMILAR—DISTRIBUTE, COMBINE LIKE TERMS, AND ISOLATE THE VARIABLE. THE ONLY DIFFERENCE IS HANDLING THE COEFFICIENTS, WHICH OFTEN REQUIRE DIVIDING OR FACTORING.

ADDITIONAL RESOURCES

I NEED HELP WILL GIVE BRAINLIEST $3.7(-83x-3) = 3.7(7x-30)$

MATHEMATICS PROBLEMS OFTEN SEEM DAUNTING AT FIRST GLANCE, ESPECIALLY WHEN THEY INVOLVE ALGEBRAIC EXPRESSIONS AND EQUATIONS THAT REQUIRE CAREFUL MANIPULATION TO SOLVE. THE PHRASE "I NEED HELP WILL GIVE BRAINLIEST" INDICATES A COMMON SCENARIO ON ONLINE FORUMS OR EDUCATIONAL PLATFORMS WHERE STUDENTS SEEK ASSISTANCE WITH SPECIFIC MATH PROBLEMS IN EXCHANGE FOR A "BRAINLIEST" OR A POSITIVE ACKNOWLEDGMENT. THE PROBLEM IN QUESTION, $3.7(-83x - 3) = 3.7(7x - 30)$, APPEARS STRAIGHTFORWARD BUT WARRANTS A DETAILED BREAKDOWN TO UNDERSTAND ITS STRUCTURE, SOLVE IT EFFICIENTLY, AND EXPLORE THE UNDERLYING CONCEPTS INVOLVED.

IN THIS ARTICLE, WE WILL DISSECT THIS ALGEBRAIC EQUATION STEP-BY-STEP, PROVIDING CLARITY ON EACH STAGE OF THE SOLUTION PROCESS. ADDITIONALLY, WE WILL DISCUSS RELATED ALGEBRA CONCEPTS, COMMON PITFALLS, AND STRATEGIES THAT CAN HELP STUDENTS APPROACH SIMILAR PROBLEMS CONFIDENTLY.

UNDERSTANDING THE EQUATION

BEFORE DIVING INTO SOLVING, IT'S IMPORTANT TO UNDERSTAND WHAT THE EQUATION REPRESENTS AND IDENTIFY THE KEY COMPONENTS INVOLVED.

EQUATION BREAKDOWN

THE GIVEN EQUATION IS:

$$[3.7(-83x - 3) = 3.7(7x - 30)]$$

THIS IS A LINEAR EQUATION INVOLVING A VARIABLE (x) , WITH EACH SIDE MULTIPLIED BY A COMMON COEFFICIENT, 3.7 . RECOGNIZING THIS STRUCTURE IS CRUCIAL BECAUSE IT SUGGESTS THAT THE 3.7 TERM CAN POTENTIALLY BE FACTORED OUT OR CANCELED, SIMPLIFYING THE PROBLEM.

KEY FEATURES:

- BOTH SIDES INVOLVE THE SAME MULTIPLICATIVE COEFFICIENT (3.7).
- THE EXPRESSIONS INSIDE THE PARENTHESES ARE LINEAR IN (x) .
- THE GOAL IS TO FIND THE VALUE(S) OF (x) THAT SATISFY THE EQUATION.

STEP-BY-STEP SOLUTION

THE PROCESS INVOLVES APPLYING ALGEBRAIC PRINCIPLES—DISTRIBUTIVE PROPERTY, COMBINING LIKE TERMS, AND SOLVING FOR x .

STEP 1: RECOGNIZE THE COMMON FACTOR

SINCE BOTH SIDES ARE MULTIPLIED BY 3.7, AND $3.7 \neq 0$, WE CAN DIVIDE BOTH SIDES OF THE EQUATION BY 3.7 TO SIMPLIFY:

$$\frac{3.7(-83x - 3)}{3.7} = \frac{3.7(7x - 30)}{3.7}$$

WHICH REDUCES TO:

$$-83x - 3 = 7x - 30$$

PROS OF THIS STEP:

- SIMPLIFIES THE EQUATION SIGNIFICANTLY.
- ELIMINATES UNNECESSARY COMPLEXITY.

NOTE: ALWAYS VERIFY THAT THE DIVISOR IS NOT ZERO BEFORE DIVIDING, BUT IN THIS CASE, 3.7 IS A NON-ZERO CONSTANT.

STEP 2: REARRANGE THE EQUATION TO GATHER LIKE TERMS

TO ISOLATE x , WE NEED TO BRING ALL TERMS INVOLVING x TO ONE SIDE AND CONSTANTS TO THE OTHER:

$$-83x - 3 = 7x - 30$$

ADD $(83x)$ TO BOTH SIDES:

$$-3 = 7x + 83x - 30$$

COMBINE LIKE TERMS:

$$-3 = 90x - 30$$

ADD 30 TO BOTH SIDES:

$$-3 + 30 = 90x$$

$$27 = 90x$$

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STEP 3: SOLVE FOR x

DIVIDE BOTH SIDES BY 90:

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$$x = \frac{27}{90}$$

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SIMPLIFY THE FRACTION:

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$$x = \frac{3}{10}$$

\]

OR

\[

$$x = 0.3$$

\]

FINAL ANSWER AND VERIFICATION

THE SOLUTION TO THE EQUATION IS:

$$\left[x = \frac{3}{10} \text{ \texttt{\text{or}} } x = 0.3 \right]$$

VERIFICATION:

SUBSTITUTE $x = 0.3$ INTO THE ORIGINAL EQUATION:

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$$3.7(-83 \times 0.3 - 3) = 3.7(7 \times 0.3 - 30)$$

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CALCULATE EACH SIDE:

LEFT SIDE:

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$$-83 \times 0.3 = -24.9$$

\]

\[

$$-24.9 - 3 = -27.9$$

\]

\[

$$3.7 \times -27.9 = -103.23$$

\]

RIGHT SIDE:

$$\frac{7}{0.3} = 2.1$$

$$2.1 - 30 = -27.9$$

$$3.7 \times -27.9 = -103.23$$

BOTH SIDES EQUAL (-103.23) , CONFIRMING THE SOLUTION IS CORRECT.

KEY TAKEAWAYS AND CONCEPTS

THIS PROBLEM ILLUSTRATES SEVERAL FOUNDATIONAL ALGEBRA CONCEPTS, WHICH ARE VITAL FOR SOLVING SIMILAR EQUATIONS EFFICIENTLY.

UNDERSTANDING DISTRIBUTIVE PROPERTY

- RECOGNIZING WHEN TO DISTRIBUTE MULTIPLICATION OVER ADDITION/SUBTRACTION.
- APPLYING THIS PROPERTY CORRECTLY SIMPLIFIES EXPRESSIONS.

FACTORING OUT COMMON TERMS

- IDENTIFYING COMMON FACTORS (LIKE 3.7) IN BOTH SIDES HELPS REDUCE COMPLEXITY.
- VALID AS LONG AS THE DIVISOR ISN'T ZERO.

COMBINING LIKE TERMS

- ESSENTIAL FOR ISOLATING THE VARIABLE.
- SIMPLIFIES MULTI-TERM EXPRESSIONS.

CHECKING SOLUTIONS

- ALWAYS VERIFY BY SUBSTITUTING BACK INTO THE ORIGINAL EQUATION.
- ENSURES ACCURACY AND CATCHES POTENTIAL CALCULATION ERRORS.

COMMON MISTAKES AND PITFALLS

WHILE THE SOLUTION PROCESS APPEARS STRAIGHTFORWARD, STUDENTS OFTEN ENCOUNTER PITFALLS:

- DIVIDING BY ZERO: NEVER DIVIDE BOTH SIDES OF AN EQUATION BY A VARIABLE OR ZERO; ALWAYS VERIFY VALUES ARE VALID.
- INCORRECT DISTRIBUTION: FAILING TO DISTRIBUTE PROPERLY CAN LEAD TO WRONG SOLUTIONS.
- SIGN ERRORS: PAY CAREFUL ATTENTION TO NEGATIVE SIGNS DURING CALCULATIONS.
- NEGLECTING TO VERIFY SOLUTIONS: ALWAYS SUBSTITUTE SOLUTIONS BACK INTO THE ORIGINAL EQUATION.

ADDITIONAL TIPS FOR SOLVING SIMILAR PROBLEMS

- LOOK FOR COMMON FACTORS: ALWAYS SCAN EQUATIONS FOR SHARED COEFFICIENTS OR TERMS TO SIMPLIFY EARLY.
- WORK SYSTEMATICALLY: FOLLOW A CONSISTENT ORDER—DISTRIBUTE, COMBINE LIKE TERMS, ISOLATE VARIABLES.
- USE MENTAL MATH OR CALCULATOR: TO AVOID ERRORS WITH COMPLEX CALCULATIONS.
- PRACTICE SIMILAR PROBLEMS: TO BUILD CONFIDENCE AND RECOGNIZE PATTERNS.

CONCLUSION

THE EQUATION $3.7(-83x - 3) = 3.7(7x - 30)$ IS A CLASSIC EXAMPLE OF AN ALGEBRAIC PROBLEM THAT, ONCE BROKEN DOWN CAREFULLY, REVEALS A STRAIGHTFORWARD PATH TO THE SOLUTION. RECOGNIZING THE COMMON FACTOR OF 3.7 ALLOWS FOR IMMEDIATE SIMPLIFICATION, LEADING TO A LINEAR EQUATION THAT CAN BE SOLVED EFFICIENTLY. THE KEY TO MASTERING SUCH PROBLEMS LIES IN UNDERSTANDING THE UNDERLYING PRINCIPLES—DISTRIBUTIVE PROPERTY, COMBINING LIKE TERMS, AND VERIFICATION—AND PRACTICING SYSTEMATICALLY. WITH THESE STRATEGIES, STUDENTS CAN CONFIDENTLY TACKLE SIMILAR ALGEBRAIC EQUATIONS, REDUCING FRUSTRATION AND ENHANCING THEIR PROBLEM-SOLVING SKILLS.

WHETHER YOU'RE SEEKING HELP ONLINE OR STUDYING INDEPENDENTLY, REMEMBER THAT PATIENCE AND METHODICAL WORK ARE YOUR BEST TOOLS FOR SUCCESS IN ALGEBRA. KEEP PRACTICING, AND DON'T HESITATE TO SEEK HELP WHEN NEEDED—RESOURCES ARE ABUNDANT, AND EVERY PROBLEM SOLVED ADDS TO YOUR MATHEMATICAL CONFIDENCE.

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