

Solve Equations with Justification:

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| Ex. 1: | $2(5x + 4) = 7x - 4$ $\begin{array}{r l} 10x + 8 & = 7x - 4 \\ -7x & -7x \\ \hline 3x + 8 & = -4 \\ -8 & -8 \\ \hline 3x & = -12 \\ \frac{3x}{3} & = \frac{-12}{3} \\ \hline x & = -4 \end{array}$ | Justification <hr/> Distributive Property Subtraction Property of Equality Subtraction Prop. of Eq. Division Prop. of Eq. |
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- ~~*~~ • Addition
- ~~*~~ • Subtraction
- ~~*~~ • Multiplication

- ~~*~~ • Division
- Distributive Property
- Combine Like Terms

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| Ex. 2: | $\cancel{-2x} + 7 + \cancel{5x} = -3x - 17$ $\begin{array}{r l} 3x + 7 & = -3x - 17 \\ +3x & +3x \\ \hline 6x + 7 & = -17 \\ -7 & -7 \\ \hline 6x & = -24 \\ \frac{6x}{6} & = \frac{-24}{6} \\ \hline x & = -4 \end{array}$ | Justification <hr/> Combine Like Terms Addition Prop. of Eq. Subtraction Prop. of Eq. Division Prop. of Eq. |
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Solve Inequalities:

$>$ Greater than $<$ less than

\geq G.T. or = to \leq l.t. or = to

* whenever I \cdot or \div by a $-$ #

* I have to FLIP the inequality.

Ex. 3:

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| $-11y - 9 > 13$ <hr/> $\begin{array}{r} +9 \quad +9 \\ \hline -11y > 22 \end{array}$ <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> $\frac{-11y}{-11}$ </div> <div style="text-align: center;"> $\frac{22}{-11}$ </div> </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $y < -2$ </div> | <p>Justification</p> <p>Addition Prop. of Ineq.</p> <p>Division Prop. of Ineq.</p> |
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Ex. 4:

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| $7x + 9 \geq 10x - 12$ <hr/> $\begin{array}{r} -7x \quad -7x \\ \hline 9 \geq 3x - 12 \end{array}$ <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> $\frac{9}{+12}$ </div> <div style="text-align: center;"> $\frac{3x - 12}{+12}$ </div> </div> <hr/> $\begin{array}{r} 21 \geq 3x \\ \hline 7 \geq x \end{array}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $x \leq 7$ </div> | <p>Justification</p> <p>Subtraction Prop. of Ineq.</p> <p>Addition Prop. of Ineq.</p> <p>Division Prop. of Ineq.</p> |
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