

## 2.2 Solving 2-step Equations

imp\* To solve 2 step equations, "undo" each operation in reverse order.

WHEN SOLVING FOR  $x$

1st thing to undo  
2nd step  
3rd step  
4th step

Add or Sub  
mult or division  
exponents  
parenthesis

EX

$$\begin{array}{r} 2x + 3 = 9 \\ -3 \quad -3 \\ \hline 2x = 6 \\ \frac{2x}{2} = \frac{6}{2} \\ x = 3 \end{array}$$

step 1 (-)

step 2 ( $\div$ )

$$\begin{array}{r} 3x + 2 = 20 \\ -2 \quad -2 \\ \hline 3x = 18 \\ \frac{3x}{3} = \frac{18}{3} \\ x = 6 \end{array}$$

step 1 (-)

step 2 ( $\div$ )

$$\begin{array}{r} 5 + 2n = -1 \\ -5 \quad -5 \\ \hline 2n = -6 \\ \frac{2n}{2} = \frac{-6}{2} \\ n = -3 \end{array}$$

step 1 (-)

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step 1 (-)

step 2 ( $\div$ )

$$\begin{array}{r} -5 + 2n = -1 \\ -5 = -5 \\ \hline 2n = -6 \\ \frac{2n}{2} = \frac{-6}{2} \\ n = -3 \end{array}$$

step 1 (-)

step 2 ( $\div$ )



$$6 - 3x = 21$$

OR  
↓

$$\begin{array}{r} 6 + (-3x) = 21 \\ -6 \quad \quad \quad = -6 \\ \hline -3x = 15 \\ \frac{-3x}{-3} = \frac{15}{-3} \\ x = -5 \end{array}$$



$$\begin{array}{r} 6 - 3x = 21 \\ +3x \quad \quad = +3x \\ \hline 6 = 21 + 3x \\ -21 = -21 \end{array}$$

$$\begin{array}{r} 6 = 21 + 3x \\ -21 = -21 \end{array}$$

$$\frac{-15}{3} = \frac{3x}{3}$$

$$-5 = x$$

$$\begin{array}{r} 6x + 5 = 29 \\ -5 = -5 \\ \hline 6x = 24 \\ \frac{6x}{6} = \frac{24}{6} \\ x = 4 \end{array}$$

$$\begin{array}{r} 3x - 3y = -21 \\ +3y = +3y \\ \hline 3x = -21 \\ \frac{3x}{3} = \frac{-21}{3} \\ x = -7 \end{array}$$

$$\begin{array}{r} \frac{1}{3}x + 2 = 4 \\ -2 = -2 \\ \hline \frac{1}{3}x = 2 \end{array}$$

$$\frac{1}{3}x = 2$$

$$\frac{3}{1} \cdot \frac{1}{3}x = \frac{2}{1} \cdot \frac{3}{1}$$

$$x = 6$$

$$\frac{3}{1} \cdot \frac{x}{3}$$

$$x \div 3$$