

If an equation has parentheses, we can change the equation to not have parentheses by using the distributive property to simplify. Just like when we had to combine like terms, you must simplify before you can solve.

distribuir distribute

$$4(x + 2) = 20$$

multiply

$$4x + 8 = 20$$

$$4x + 8 - 8 = 20 - 8$$

$$4x = 12$$

$$x = 3$$

Check:  $4(x + 2) = 20$

$4(3 + 2)$	$20$
$4 \cdot 5$	$20$

① sumas o restas

② multiplicam o dividem

Examples:

{1}  $3(x - 1) = 6$

$$3x - 3 = 6$$

$$+3 \quad +3$$


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$$3x = 9$$

$$\frac{3x}{3} = \frac{9}{3}$$

$x = 3$

{2}  $2(a + 1) = 10$

$$2a + 2 = 10$$

$$-2 \quad -2$$


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$$2a = 8$$

$$\frac{2a}{2} = \frac{8}{2}$$

$a = 4$

**In Class Practice:**

Use the distributive property to simplify.

{1}  $3(x - 2)$

$3x - 6$

{2}  $6(x - 1)$

$6x - 6$

{3}  $5(x + 4)$

$$5x + 5 \cdot 4$$

$5x + 20$

{4}  $2(3x - 7)$

$$2 \cdot 3x - 2 \cdot 7$$

$6x - 14$

{5}  $4(2z + 3)$

$$4 \cdot 2z + 4 \cdot 3$$

$8z + 12$

{6}  $2(a + 4) + a$

$$2a + 8 + a$$

$3a + 8$

{7}  $5(a - 1) + 5$

$$5a - 5 + 5$$

cancelar

$5a$

{8}  $4(1 + x) + 5x$

$$4 + 4x + 5x$$

$4 + 9x$

Solve. Don't forget to simplify first!

$$(9) \quad 2(x-3) = 6$$

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

$$\frac{2x}{2} = \frac{12}{2}$$

$$\boxed{x=6}$$

$$(10) \quad 2(x+2) = 4$$

$$\begin{array}{r} 2x + 4 = 4 \\ -4 \quad -4 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{0}{2}$$

$$\boxed{x=0}$$

$$(11) \quad 3(x-4) = 12$$

$$\begin{array}{r} 3x - 12 = 12 \\ +12 \quad +12 \\ \hline \end{array}$$

$$\frac{3x}{3} = \frac{24}{3}$$

$$\boxed{x=8}$$

$$(12) \quad 3(x-1) = 6$$

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

$$\frac{3x}{3} = \frac{9}{3}$$

$$\boxed{x=3}$$

$$(13) \quad 5(x+2) = 15$$

$$\begin{array}{r} 5x + 10 = 15 \\ -10 \quad -10 \\ \hline \end{array}$$

$$\frac{5x}{5} = \frac{5}{5}$$

$$\boxed{x=1}$$

$$(16) \quad 4(a-2) = 12$$

$$\begin{array}{r} 4a - 8 = 12 \\ +8 \quad +8 \\ \hline \end{array}$$

$$\frac{4a}{4} = \frac{20}{4}$$

$$\boxed{a=5}$$

$$(17) \quad 3(a+1) - 2 = 7$$

$$3a + 3 - 2 = 7$$

$$\begin{array}{r} 3a + 1 = 7 \\ -1 \quad -1 \\ \hline \end{array}$$

$$\frac{3a}{3} = \frac{6}{3}$$

$$\boxed{a=2}$$

$$(18) \quad 2(4+a) + 2a = 12$$

$$8 + 2a + 2a = 12$$

$$\begin{array}{r} 8 + 4a = 12 \\ -8 \quad -8 \\ \hline \end{array}$$

$$\frac{4a}{4} = \frac{4}{4} \quad \boxed{a=1}$$

$$(19) \quad 3a + 4a - 4 = 24$$

$$\begin{array}{r} 7a - 4 = 24 \\ +4 \quad +4 \\ \hline \end{array}$$

$$\frac{7a}{7} = \frac{28}{7}$$

$$\boxed{a=4}$$

$$(20) \quad 5m - m + 2 = 50$$

$$\begin{array}{r} 4m + 2 = 50 \\ -2 \quad -2 \\ \hline \end{array}$$

$$\frac{4m}{4} = \frac{48}{4}$$

$$\boxed{m=12}$$