

10.4 Linear Equations – Distributive Property Notes

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10.4 Distributive Property $a(x+b) = c$

Step 1 - Distribute the number in front of the brackets by multiplying it out by the terms inside the brackets.

$$\begin{aligned} -2(x-3) &= 12 \\ -2(\overset{\text{red}}{x}-\overset{\text{red}}{3}) &= 12 \\ (-2 \times x) \quad (-2 \times -3) \\ -2x + 6 &= 12 \end{aligned}$$

Step 2 - Get rid of the constant by adding or subtracting

$$-2x + \overset{-6}{\cancel{6}} = \overset{-6}{\cancel{12}}$$

Step 3 - Divide out by the coefficient.

$$\frac{-2x}{\cancel{-2}} = \frac{6}{\cancel{-2}}$$

Answer

$$x = -3$$

Check!

When substituting a value into an equation, be sure to use the correct order of operations:

Brackets

Multiply and divide left to right

Add and subtract from left to right

$$\begin{aligned} -2(\overset{\text{red}}{x}-3) &= 12 \\ -2(\overset{\text{red}}{-3}-3) &= 12 \\ -2(-6) &= 12 \\ 12 &= 12 \quad \checkmark \end{aligned}$$

Try it together!

Answer: $p = -7$

$$5(3+p) = -20$$

Check:

Try it on your own!

Answer: $p = -10$

$$3(k+3) = -21$$

Check: