

Objective 1/2

Solve a 1-variable linear equation

Vocab:

Linear equation: an equation that will form a line when graphed and contains only variable when simplified

Example:

PROBLEM

$$\text{Solve: } -6(-4x + 5) - 3x - 5 = -3$$

STEP 1

Distribute the -6 over the parentheses.

$$\begin{aligned} -6(-4x + 5) - 3x - 5 &= -3 \\ -6(-4x) + (-6)(5) - 3x - 5 &= -3 \\ 24x - 30 - 3x - 5 &= -3 \end{aligned}$$

STEP 2

Use the commutative property to rearrange the terms on the left side of the equation so that like terms are adjacent.

$$\begin{aligned} 24x - 30 - 3x - 5 &= -3 \\ 24x - 3x - 30 - 5 &= -3 \end{aligned}$$

STEP 3

Combine like terms on the left side of the equation.

$$\begin{aligned} 24x - 3x - 30 - 5 &= -3 \\ 21x - 35 &= -3 \end{aligned}$$

STEP 4

Add 35 to each side of the equation.

$$\begin{aligned} 21x - 35 &= -3 \\ 21x - 35 + 35 &= -3 + 35 \\ 21x &= 32 \end{aligned}$$

STEP 5

Divide each side by 21.

$$\begin{aligned} \frac{21x}{21} &= \frac{32}{21} \\ x &= \frac{32}{21} \end{aligned}$$

Guided Practice:

$$7(d - 5) + 12 = 5$$

$$7(x + 6) + 7x = 9$$

Practice: Solve a 1-variable linear equation

Solve:

1. $-6(3x + 2) + 5x - 2 = 4$ [A] $x = -\frac{18}{13}$ [B] $x = -\frac{6}{13}$ [C] $x = \frac{6}{13}$ [D] $x = \frac{18}{13}$

2. $3(2x - 4) - 2x + 5 = -3$

3. $2(-4x - 8) = -5$ [A] $x = -\frac{21}{8}$ [B] $x = -\frac{11}{8}$ [C] $x = \frac{21}{8}$ [D] $x = \frac{11}{8}$

4. $-3(-3x - 8) = 2$

Additional Help:

<https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/basic-equation-practice/v/equations-3>

<http://www.math.utah.edu/~giessing/notes/Ch3.3.pdf>