

Section 2-3: Solving Multi-Step Equations

Objectives: 1) To solve multi-step equations in one variable.

To solve a multi - step equation, use the properties of equality, inverse operations, and properties of real numbers. You will need to do this until you isolate the variable.

Problem 1 – Solving Multi-Step Equations

a) $11m - 8 - 6m = 22$

$$5m - 8 = 22$$

$$5m = 30$$

Now you try... $m = 6$

b) $-8(2x - 1) = 36$

$$-16x + 8 = 36$$

$$-16x = 28$$

$$x = \frac{-28}{16} = -\frac{7}{4}$$

1) $-2y + 5 + 5y = 14$

$$3y + 5 = 14$$

$$3y = 9$$

$$y = 3$$

2) $18 = 3(2x - 6)$

$$18 = 6x - 18$$

$$36 = 6x$$

$$x = 6$$

Problem 2 – Solving a Multi-Step Equation with Fractions

In these examples, the multiplication is done FIRST. Then, the addition and subtraction.

12a) $\left(\frac{3x}{4} - \frac{x}{3}\right) = (10)12$

$$9x - 4x = 120$$

$$5x = 120$$

Now you try... $x = 24$

16b) $\left(\frac{n}{2} - \frac{2n}{16}\right) = \left(\frac{3}{8}\right)16$

$$8n - 2n = 6$$

$$6n = 6$$

$$n = 1$$

20b) $\left(\frac{2b}{5} + \frac{3b}{4}\right) = (3)20$

$$8b + 15b = 60$$

$$23b = 60$$

$$b = \frac{60}{23}$$