Simplify.

$4 + 3a(2a - 5) - (8a^2 + a - 11)$

$4 + 6a^2 - 15a - 8a^2 - a + 11$

$-2a^2 - 16a + 15$

The main goal when solving an equation is

Get the variable by itself on one side of the equal sign.

To get the variable by itself you must move everything else to the other side of the equal sign.

To move a quantity from one side of the equal sign to the other side you use the inverse math operation.

What you do to one side of an equation you must do to the other side.

Equivalent Equations are equations with the same solution.

Are these equivalent equations?

No, because they don't have the same solution.

$4x + 7 = 31$

$-7 \quad -7$

$\frac{4x}{4} = \frac{24}{4}$

$x = 6$

$\frac{x}{3} + 7 = 5$

$-7 \quad -7$

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

$x = -6$

Is x = -5 a solution to the following equation?

$4x^2 + 16x - 1 = 9$

replace x with -5 and simplify the left side: $4(-5)^2 + 16(-5) - 1$

$=100 + -80 - 1 = 19$

Since the left side isn't equal to 9 like the right side, x = -5 is NOT a solution.

Solutions to an equation are values for the variable that make the equation true.