

Assignment: G7

Solve the following algebra equations using the Inversion Process as shown below. Write all of the steps for both

$$3x^2 - 25 = 50$$

This is what the LHS describes

- Square the number.
- Multiply by 3.
- Subtract 25

This is what we do to the RHS

- Add 25
- Divide by 3
- Square Root

Result: (1) $50 + 25 = 75$
 (2) $75/3 = 25$
 (3) $\sqrt{25} = 5 \text{ or } -5$ ← **Solutions: $x = 5$ and $x = -5$**

$$(1) \frac{x+7}{4} = 3$$

This is what the LHS describes

This is what we do to the RHS

Result:

$$(2) 5\sqrt{x-2} + 3 = 8$$

This is what the LHS describes

This is what we do to the RHS

Result:

$$(3) \frac{\left(\frac{x+8}{3}\right)^2 - 3}{2} = 11$$

This is what the LHS describes

This is what we do to the RHS

Result:

$$(4) \frac{1}{x^{-5}} = 2$$

This is what the LHS describes

This is what we do to the RHS

Result:

Solve these expressions for a:

$$(5) \frac{2b-3a^2}{4} = 1 \quad a = \underline{\hspace{2cm}}$$

$$(6) a\sqrt{4x^2 - t} = 1 \quad a = \underline{\hspace{2cm}}$$

$$(7) \quad x\sqrt{4a^2 - t} = 1 \quad a = \underline{\hspace{2cm}}$$

$$(8) \quad t\sqrt{4x^2 - a} = 1 \quad a = \underline{\hspace{2cm}}$$

Solve these algebraic equations for x:

$$(9) \quad 3(x - 5) = 2x + 10$$

$$(10) \quad \frac{2x}{5} + 1 = x - 1$$

$$(11) \quad 2x^2 - 1 = 4x^2 + 7$$

$$(12) \quad 3 - \sqrt{x + 5} = -2$$

Find all x-values that will solve each of these inequalities:

$$(13) \quad \frac{2}{x} \leq 1$$

$$(14) \quad 0 < \frac{2}{x} \leq 1$$

$$(15) \quad 4 < x + 7 < 3$$

$$(16) \quad 2x + 5 \geq x - 8 \geq 2x + 10$$