

$$5. \quad \cancel{5}x - 30 = 2x$$

$$\quad \cancel{-5x} \quad \quad \quad -5x$$

$$\frac{-30}{-3} = \frac{-3x}{-3}$$

$$x = 10$$

$$6. \quad 20 + 7x = 55 + 2x$$

$$\quad \quad \quad \cancel{-2x} \quad \quad \quad -2x$$

$$20 + 5x = 55$$

$$\quad \quad \quad \cancel{-20} \quad \quad \quad -20$$

$$\frac{5x}{5} = \frac{25}{5}$$

$$x = 5$$

Radicals & Solving Quadratics with Square Roots

- A radical is a sort of math riddle. It asks the question, "What is a number that can multiply by itself a certain # of times to equal me?"

$\sqrt[3]{8}$ "What # times itself three times is 8?" $2 \cdot 2 \cdot 2 = 8$

2

$\sqrt[8]{256}$ "What # time itself eight times is 256?" 2

$\sqrt{64}$ "What # times itself twice is 64?" 8

➤ A radical "undoes" exponentiation of the same power!

$$\left(\sqrt[3]{8}\right)^3 = 8$$

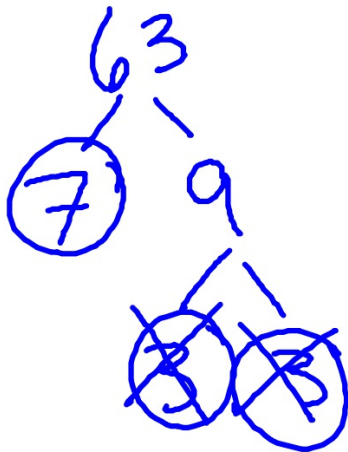
$$\sqrt{x^2} = x$$

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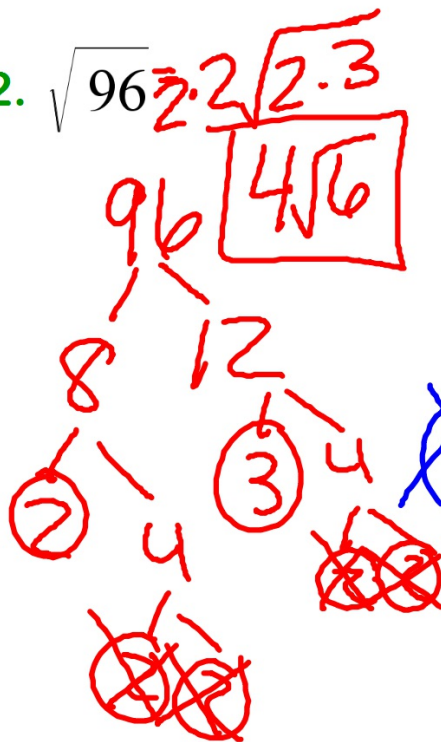
$$\sqrt[4]{x^4} = x$$

Let's practice how to simplify radicals

1. $\sqrt{63} = \boxed{3\sqrt{7}}$



2. $\sqrt{96} = \boxed{4\sqrt{6}}$



3. $\sqrt{360} = \boxed{6\sqrt{10}}$



Unit 2B: Solving Quadratic Equations

Quadratic Equations: A lot of times we say "Solve" in math, when we really mean something else, like simplify, factor, multiply, etc. You can only solve equations, which involves finding the values that make the equation True.

To solve a quadratic equation, you must have it set equal to zero.

Standard Form

$$ax^2 + bx + c = 0$$

When you solve a polynomial, the values you find are called:

X-intercepts, roots, zeroes
Solutions

I. Solve Quadratic Equations by using the Square Root Method

Undo everything that has been done to get x by itself. Remember, a $\sqrt{\quad}$ undoes a $(\quad)^2$

EX1: Solve $2x^2 = 2$

$$\pm \sqrt{x^2} = \pm \sqrt{1}$$

$x = \pm 1$

EX2: Solve $x^2 - 3 = 1$

$$\pm \sqrt{x^2} = \pm \sqrt{4}$$

$x = \pm 2$

EX3: Solve $3x^2 - 100 = 332$

$$\frac{3x^2}{3} = \frac{432}{3}$$
$$\pm \sqrt{x^2} = \pm \sqrt{144}$$

$x = \pm 12$

SQUARE ROOT

