

SQUARE VS. SQUARE ROOTS

$$\left(\sqrt{x}\right)^2 \longleftrightarrow x^2$$

What is the opposite of a square root?

SOLVING RADICAL EQUATIONS //

1. Isolate Radicals $\sqrt{\quad}$ //
2. Square Both Sides
3. Solve + CHECK

(YOU MUST ALWAYS CHECK SOLUTIONS)

EXAMPLE:

$$\frac{10\sqrt{n}}{10} = \frac{30}{10}$$

$$(\sqrt{n})^2 = (3)^2$$

$$n = 9$$

Check

$$10\sqrt{9} = 30$$

$$10 \cdot 3 = 30$$

$$30 \stackrel{\checkmark}{=} 30$$

EXAMPLE:

$$\cancel{-7} + \sqrt{2x - 16} = \cancel{-5}$$

$$+7 \quad +7$$
$$(\sqrt{2x-16})^2 = (2)^2$$

$$2x - 16 = 4$$
$$+16 \quad +16$$

$$\frac{2x}{2} = \frac{20}{2}$$

$$x = 10$$

Check

$$-7 + \sqrt{2(10) - 16} = -5$$

TRUE

EXAMPLE:

$$(-3)^2 = (\sqrt{n})^2$$

$-3 \cdot -3$

~~$$9 = n$$~~

Check

$$-3 = \sqrt{9}$$

$-3 \neq 3$

False

NO Solution

EXAMPLE:

$$\left(\sqrt{4n}\right)^2 = \left(\sqrt{3n+2}\right)^2 \quad \text{Check}$$

$$\begin{array}{r} 4n = 3n + 2 \\ -3n \quad -3n \\ \hline 1n = 2 \end{array}$$

$$\sqrt{4(2)} = \sqrt{3(2)+2}$$

$$\sqrt{8} = \sqrt{8}$$

$$\frac{1n}{1} = \frac{2}{1}$$

$$n = 2$$

True

EXAMPLE:

$$\left(\sqrt{23 - 2x}\right)^2 = \left(\sqrt{16 - x}\right)^2$$

$$23 - 2x = 16 - x$$

$+x$ $+x$

$$23 - x = 16$$

-23 -23

$$-x = -7$$

$\frac{-x}{-1} = \frac{-7}{-1}$

$$x = 7$$