

OBJECTIVE 1: Square Root Property

This method should be used when $b = 0$ in the equation $ax^2 + bx + c = 0$.

** Do not forget the \pm every time you put the $\sqrt{\quad}$ there. **

TASK 1: Use the square root property to solve the following equations.

a) $\sqrt{x^2} = \sqrt{50}$

$x = \pm \sqrt{25 \cdot 2}$

$x = \pm 5\sqrt{2}$

b) $\sqrt{x^2} = \sqrt{32}$

$x = \pm \sqrt{16 \cdot 2}$

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

c) $\sqrt{2x^2} = \frac{28}{2}$
 $\sqrt{x^2} = \sqrt{14}$
 $x = \pm \sqrt{14}$

TASK 2: Use the square root property to solve the following equations.

a) $2x^2 - 14 = 0$

$\frac{2x^2}{2} = \frac{14}{2}$

$x^2 = \sqrt{7}$

$x = \pm \sqrt{7}$

b) $5x^2 - 50 = 0$

$\frac{5x^2}{5} = \frac{50}{5}$

$x^2 = \sqrt{10}$

$x = \pm \sqrt{10}$

c) $4x^2 = 28$

$\frac{4x^2}{4} = \frac{28}{4}$

$x^2 = \sqrt{7}$

$x = \pm \sqrt{7}$

TASK 3: Use the square root property to solve the following equations.

a) $\sqrt{(x+1)^2} = \sqrt{12}$

$x+1 = \pm \sqrt{4 \cdot 3}$

$x = -1 \pm 2\sqrt{3}$

b) $\sqrt{(x+3)^2} = \sqrt{20}$

$x+3 = \pm \sqrt{4 \cdot 5}$

$x = -3 \pm 2\sqrt{5}$

c) $\sqrt{(x-2)^2} = \sqrt{64}$

$x-2 = \pm 8$

$x = 2 \pm 8$

$x \neq 8+2$ $x = 2-8$

$x = 10$

$x = -6$

TASK 4: Use the square root property to solve the following equations.

a) $\sqrt{(2x-5)^2} = \sqrt{-16}$

$$2x-5 = \pm\sqrt{-4 \cdot 4}$$

$$2x-5 = \pm 4i$$

$$\frac{2x}{2} = \frac{5 \pm 4i}{2}$$

$$x = \frac{5 \pm 4i}{2}$$

b) $\sqrt{(5x-2)^2} = \sqrt{-9}$

$$5x-2 = \pm\sqrt{-1 \cdot 3 \cdot 3}$$

$$5x-2 = \pm 3i$$

$$\frac{5x}{5} = \frac{2 \pm 3i}{5}$$

$$x = \frac{2 \pm 3i}{5}$$

c) $\sqrt{(3x+4)^2} = \sqrt{24}$

$$3x+4 = \pm\sqrt{4 \cdot 6}$$

$$3x+4 = \pm 2\sqrt{6}$$

$$\frac{3x}{3} = \frac{-4 \pm 2\sqrt{6}}{3}$$

$$x = \frac{-4 \pm 2\sqrt{6}}{3}$$

Reminders to myself about the Square Root Property:

- Don't forget the \pm
- $\sqrt{-1} = i$
- get the $(\textcircled{2})$ alone $1^{st}!$
- if $b=0 \Rightarrow \sqrt{\quad}$

Still need help with: