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Method 2: The Square root Method

perfect square = #

Vocabulary Problems

Ex 1: $16x^2 = 144$

$\sqrt{16x^2} = \sqrt{144}$

$\frac{4x}{4} = \frac{\pm 12}{4}$

$x = \pm 3$

1) Take the square root of both sides.

2) Always put a $\pm$ in front of the # after you take the square root.

Ex 2: $(x-6)^2 = 36$

$\sqrt{(x-6)^2} = \sqrt{36}$

$x - 6 = \pm 6$

$x - 6 = -6$ $\quad$ $x - 6 = 6$

$+6 \quad +6$ $\quad$ $+6 \quad +6$

$x = 0$ or $x = 12$

Ex 3: $49x^2 - 40 = 0$

$+40 \quad +40$

Perfect Square

$49x^2 = 40$ ← Now we can use the square root method.

$\sqrt{49x^2} = \sqrt{40}$

$\frac{7x}{7} = \frac{\pm\sqrt{40}}{7}$ or $\frac{7x}{7} = \frac{\pm 2\sqrt{10}}{7}$

$x = \pm\frac{\sqrt{40}}{7}$ $\quad x = \pm\frac{2\sqrt{10}}{7}$