Method 2: The Square root Method

perfect square = #

Vocabulary Problems

Ex 1: \[16x^2 = 144\]
\[\sqrt{16x^2} = \sqrt{144} \]
\[4x = \frac{\pm 12}{4} \]
\[x = \pm 3\]

Ex 2: \[(x - 6)^2 = 36\]
\[\sqrt{(x - 6)^2} = \sqrt{36} \]
\[x - 6 = \pm 6\]
\[x - 6 = -6 \quad \text{or} \quad x - 6 = 6\]
\[x = 0 \quad \text{or} \quad x = 12\]

1) Take the square root of both sides.
2) Always put a ± in front of the # often you take the square root.
Ex 3: \[ 49x^2 - 40 = 0 \]

\[ \underline{40} \quad \underline{+40} \]

\[ 49x^2 = 40 \]

\[ \sqrt{49x^2} = \sqrt{40} \]

\[ 7x = \pm \sqrt{40} \]

\[ \frac{7x}{7} = \frac{\pm \sqrt{40}}{7} \]

Perfect Square

\[ x = \pm \frac{\sqrt{40}}{7} \]

Now we can use the square root method.

or

\[ 7x = \pm \frac{2-\sqrt{10}}{7} \]

\[ x = \pm \frac{2-\sqrt{10}}{7} \]