How to Simplify a Radical

Identifying parts

Parts of a Radical

radical symbol

index $\rightarrow 3$

27 $\leftarrow$ radicand
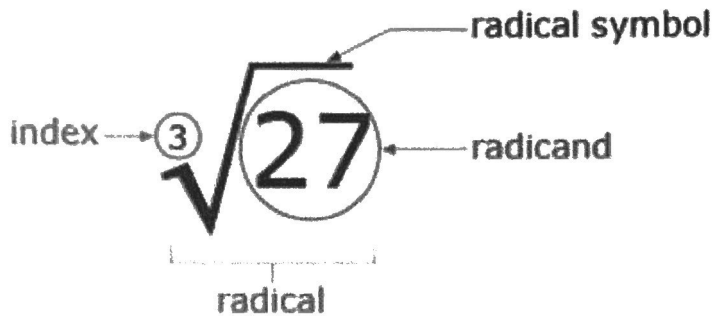
radical

$$\sqrt[2]{} = \sqrt{}$$

$$1x = \underline{1}x$$

How to simply:

1. Identify the index.

2. Break down the radicand to factors. Factor Tree

3. Group like factors.

4. If group has the same number of members as the index then a representative for the group will be placed in front.

5. Any factors that do not have a group remain inside the radical.

Examples:

1. $\sqrt{48}$ 48 $2 \cdot 2\sqrt{3}$ $\boxed{4\sqrt{3}}$ 6 8 2 3 4 2 2·2 2·2 2·2·3	**2.** $\sqrt{180}$ 180 18·10 2 9 2 5 3 3 2·2 3·3 5 $2\cdot3\sqrt{5}$ $\boxed{6\sqrt{5}}$
3. $\sqrt{294}$ 294 $7\sqrt{2\cdot3}$ $\boxed{7\sqrt{6}}$ $2\cdot3$ 7·7 2 147 3 · 49 7·7	**4.** $4\sqrt{50}$ 50 $4\cdot5\sqrt{2}$ $\boxed{20\sqrt{2}}$ 2·25 5·5 2 5·5