

Simplest Radical Form

View Work: Simplify

- 1) $\sqrt{25}$ 5 2) $\sqrt{81}$ 9 3) $\sqrt{1}$ 1 4) $\sqrt{49}$ 7 5) $\sqrt{100}$ 10
 6) $\sqrt{36}$ 6 7) $\sqrt{9}$ 3 8) $\sqrt{16}$ 4 9) $\sqrt{64}$ 8 10) $\sqrt{4}$ 2

Simplifying Radicals

Rule:

Example:

Simplify: $\sqrt{18}$

* Step 1: $\sqrt{\text{PerfectSquare}} \sqrt{\text{OtherFactor}}$

Step 2: Simplify the Perfect Square

Step 3: Leave other factor in radical sign

Step 4: Write final answer

~~$\sqrt{9}$~~ $\sqrt{2}$

3

$\sqrt{2}$

$3\sqrt{2}$

* To help with Step 1 - Perfect Square MUST be written first.

List all perfect squares up to 100 - 1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Remember Begin with: $\sqrt{\text{PerfectSquare}} \sqrt{\text{OtherFactor}}$

Examples: Put each in simplest radical form.

1) $\sqrt{12} = \underline{2\sqrt{3}}$

$\sqrt{4} \sqrt{3}$
 $2\sqrt{3}$

2) $\sqrt{20} = \underline{2\sqrt{5}}$

$\sqrt{4} \sqrt{5}$
 $2\sqrt{5}$

3) $\sqrt{64} = \underline{8}$

perfect.

4) $5\sqrt{27} = \underline{15\sqrt{3}}$

$5\sqrt{9} \sqrt{3}$
 $5 \cdot 3\sqrt{3}$
 $15\sqrt{3}$

5) $3\sqrt{24} = \underline{6\sqrt{6}}$

$3\sqrt{4} \sqrt{6}$
 $3 \cdot 2\sqrt{6}$
 $6\sqrt{6}$

6) $2\sqrt{36} = \underline{12}$

$2(6)$
 12

Try These: Put each in simplest radical form.

Perfect Squares:

4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

Remember Begin with: $\sqrt{\text{PerfectSquare}} \sqrt{\text{OtherFactor}}$

$$\begin{aligned} 1) \sqrt{8} &= \underline{2\sqrt{2}} \\ \sqrt{4}\sqrt{2} \\ 2\sqrt{2} \end{aligned}$$

$$\begin{aligned} 2) 4\sqrt{18} &= \underline{12\sqrt{2}} \\ 4\sqrt{9}\sqrt{2} \\ 4 \cdot 3\sqrt{2} \\ 12\sqrt{2} \end{aligned}$$

$$\begin{aligned} 3) 8\sqrt{54} &= \underline{24\sqrt{6}} \\ 8\sqrt{9}\sqrt{6} \\ 8 \cdot 3\sqrt{6} \\ 24\sqrt{6} \end{aligned}$$

$$\begin{aligned} 4) \sqrt{28} &= \underline{2\sqrt{7}} \\ \sqrt{4}\sqrt{7} \\ 2\sqrt{7} \end{aligned}$$

$$\begin{aligned} 5) 2\sqrt{50} &= \underline{10\sqrt{2}} \\ 2\sqrt{25}\sqrt{2} \\ 2 \cdot 5\sqrt{2} \\ 10\sqrt{2} \end{aligned}$$

$$\begin{aligned} 6) 10\sqrt{45} &= \underline{30\sqrt{5}} \\ 10\sqrt{9}\sqrt{5} \\ 10 \cdot 3\sqrt{5} \\ 30\sqrt{5} \end{aligned}$$

$$\begin{aligned} 7) 2\sqrt{49} &= \underline{14} \\ 2 \cdot 7 \\ 14 \end{aligned}$$

$$\begin{aligned} 8) 5\sqrt{63} &= \underline{15\sqrt{7}} \\ 5\sqrt{9}\sqrt{7} \\ 5 \cdot 3\sqrt{7} \\ 15\sqrt{7} \end{aligned}$$

$$\begin{aligned} 9) \sqrt{108} &= \underline{6\sqrt{3}} \\ \sqrt{36}\sqrt{3} \\ 6\sqrt{3} \end{aligned}$$

Lesson 5: Classwork/Homework

Put each in simplest radical form.

$$\begin{aligned} 1) \sqrt{24} &= \underline{2\sqrt{6}} \\ \sqrt{4}\sqrt{6} \\ 2\sqrt{6} \end{aligned}$$

$$\begin{aligned} 2) \sqrt{40} &= \underline{2\sqrt{10}} \\ \sqrt{4}\sqrt{10} \\ 2\sqrt{10} \end{aligned}$$

$$\begin{aligned} 3) 5\sqrt{8} &= \underline{10\sqrt{2}} \\ 5 \cdot \sqrt{4}\sqrt{2} \\ 5 \cdot 2\sqrt{2} \\ 10\sqrt{2} \end{aligned}$$

$$\begin{aligned} 4) 4\sqrt{99} &= \underline{12\sqrt{11}} \\ 4\sqrt{9}\sqrt{11} \\ 4 \cdot 3\sqrt{11} \\ 12\sqrt{11} \end{aligned}$$

$$\begin{aligned} 5) 2\sqrt{28} &= \underline{4\sqrt{7}} \\ 2 \cdot \sqrt{4}\sqrt{7} \\ 2 \cdot 2\sqrt{7} \\ 4\sqrt{7} \end{aligned}$$

$$\begin{aligned} 6) \sqrt{64} &= \underline{8} \\ 8 \end{aligned}$$