

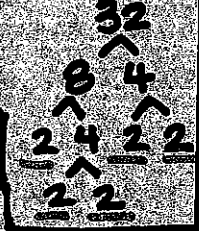
Some radicals like $\sqrt{64}$, $\sqrt{9}$, & $\sqrt{100}$ simplify to a whole #. \cup

Make a factor tree & find pairs to come out of the radical.

1 Simplify $\sqrt{32}$

$$\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}$$

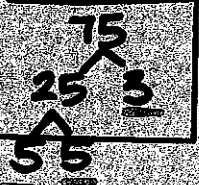
$$2 \cdot 2 \sqrt{2} = 4\sqrt{2}$$



2 Simplify $\sqrt{75x^3}$

$$\sqrt{3 \cdot 5 \cdot 5 \cdot x \cdot x \cdot x}$$

$$5x \sqrt{3x}$$



Simplify

Multiply

Divide

Rationalize the Denominator

Add & Subtract

Product Property

Algebra:

$$\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$$

Multiply outside together.
Multiply inside together.
Simplify radical if possible

Examples:

3 $\sqrt{9} \cdot \sqrt{9} = \sqrt{81} = 9$

4 $3\sqrt{g} \cdot \sqrt{2g^3}$

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

5 $2\sqrt{mn^2} \cdot \sqrt{5m^2}$

$$2\sqrt{5m^3n^2}$$

6 $2\sqrt{5mmn} = 2mn\sqrt{5m}$

Multiply

Divide

Rationalize the Denominator

Add & Subtract

Quotient Property

Algebra:

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

simplify the numerator
& denominator
separately.

Examples:

$$\textcircled{6} \quad \sqrt{\frac{5}{49}} = \frac{\sqrt{5}}{\sqrt{49}} = \frac{\sqrt{5}}{7}$$

$$\textcircled{7} \quad \sqrt{\frac{11}{d^4}} = \frac{\sqrt{11}}{\sqrt{d^4}} = \frac{\sqrt{11}}{d^2}$$

$$\sqrt{d \cdot d \cdot d \cdot d}$$

$d \cdot d$

Divide

Rationalize the Denominator

Add & Subtract

Prime #'s:

2, 3, 5, 7, 11, 13, 17, 19,
23, 29, 31, 37, 41, 43,
47