

SIMPLIFY ( Fraction .... reduce )

adding / subtracting fractions

ex)  $\frac{3}{4} + \frac{4}{3}$



$$\frac{9}{12} + \frac{8}{12}$$

## Simplifying Radicals

Basic Radical Rules:

$$\textcircled{1} \quad a\sqrt{x} + b\sqrt{x} \\ (a+b)\sqrt{x}$$

$$\textcircled{2} \quad \frac{\sqrt{a}}{\sqrt{b}} = \sqrt{\frac{a}{b}}$$

$$\text{ex: } \frac{\sqrt{81}}{\sqrt{3}} = \sqrt{\frac{81}{3}} = \sqrt{27}$$

$$\textcircled{3} \quad \sqrt{a} \cdot \sqrt{b} = \sqrt{a \cdot b}$$

$$\text{ex: } \sqrt{200} \cdot \sqrt{\frac{1}{2}} = \sqrt{200 \cdot \frac{1}{2}} \\ = \sqrt{100} = 10$$

## Simplifying radicals

$$\sqrt{\frac{1}{100}} = \frac{\sqrt{1}}{\sqrt{100}}$$
$$= \frac{1}{100}$$

find factors of the radicand  
that are perfect squares

(ie: 9, 25, 16, 36, 64, 49, 81, 100,  
144...)

option 1

ex:  $\sqrt{27}$

$$\begin{array}{c} 27 \\ / \quad \backslash \\ 9 \quad 3 \end{array}$$

option 2  
prime factoriza-  
tion

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

$$\begin{array}{c} 27 \\ / \quad \backslash \\ 9 \quad 3 \\ / \quad \backslash \\ 3 \quad 3 \end{array}$$

$$\sqrt{27} = \sqrt{3 \cdot 3 \cdot 3}$$

$$\sqrt{75} = \sqrt{25} \cdot \sqrt{3} = 5\sqrt{3}$$