

Simplifying Radical Expressions

Recall: $\sqrt{49a^2} = 7a$ We can split the radical up when multiplying.

$$\sqrt{49 \cdot a^2}$$

$$\sqrt{49} \cdot \sqrt{a^2}$$

$$7 \cdot a$$

Note: $\sqrt{49+a^2} \neq \sqrt{49} + \sqrt{a^2}$, NO!

Simplify

Break into factors, one must be a perfect square

Ex ①

$$\sqrt{27}$$

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

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

$$3\sqrt{3}$$

$$\textcircled{2} \quad \sqrt{24} = \sqrt{8 \cdot 3}$$

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

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

$$2\sqrt{6}$$

↖ avoid

1	49
4	81
9	100
16	121
25	144
36	169

Split the Radical

$$\textcircled{3} \quad \sqrt{150}$$

$$\sqrt{25 \cdot 6}$$

$$\sqrt{25} \cdot \sqrt{6}$$

$$5\sqrt{6}$$

$$25 \overline{)150}^6$$

$$\underline{150}$$

$$0$$

$$\textcircled{4} \quad \sqrt{36x}$$

$$\sqrt{36} \cdot \sqrt{x}$$

$$6\sqrt{x}$$

Reduce Each Square Root