

### Steps to Simplify Square Root Problems with Non Perfect Squares

1. Write out problem.
2. Factor number under  $\sqrt{\quad}$  so that new factors involve a perfect square. Make sure you find the **largest perfect square factor**.

Example  $\sqrt{32}$  is not a perfect square, but it can be written as  $\sqrt{16 \cdot 2}$ .

Note: We did not pick 4 times 8 because 16 is the largest perfect square factor of 32.

3. Use product rule and put  $\sqrt{\quad}$  over each factor.
4. Simplify first  $\sqrt{\quad}$  and put result in front of other  $\sqrt{\quad}$  that is not a perfect square.

Example: Simplify

$$\begin{aligned}\sqrt{32} \\ &= \sqrt{16 \cdot 2} \\ &= \sqrt{16} \cdot \sqrt{2} \\ &= 4\sqrt{2}\end{aligned}$$