DO NOW

Solve for x, considering all possible roots:

$$x^2 = 81$$

$$x = \pm\sqrt{81}$$

$$\boxed{x = \pm 9}$$

Review 1.7

- Radicand, index, principal root
- Rational vs. irrational
- Approximating with a calculator
- Perfect squares
- Simplify...focus on dividing by perfect squares
- Solving equations
- + and - → MUST have same radicand
  SIMPLIFY FIRST
- x and ÷ → SIMPLIFY LAST

Radical Review

Examples:

1. $\sqrt{72a^3b^5}$

$\sqrt{72}\sqrt{a^3}\sqrt{b^5}$

$\sqrt{36}\sqrt{2}\sqrt{a^2}\sqrt{a}\sqrt{b^4}\sqrt{b}$

$\sqrt{36}\sqrt{a^2}\sqrt{b^4}\sqrt{2ab}$

$\boxed{6ab^2\sqrt{2ab}}$

2. $4\sqrt{3} + \sqrt{75}$

$4\sqrt{3} + \sqrt{25}\sqrt{3}$

$4\sqrt{3} + 5\sqrt{3}$

$\boxed{9\sqrt{3}}$

3. $\dfrac{32}{\sqrt{8}}$

$\dfrac{32}{\sqrt{4}\sqrt{2}}$

$\dfrac{32}{2\sqrt{2}}$

$\dfrac{16}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}}$

$\dfrac{16\sqrt{2}}{2}$

$\boxed{8\sqrt{2}}$

4. $\left(3\sqrt{5}\right)\left(6\sqrt{12}\right)$

$18\sqrt{60}$

$18\sqrt{4}\sqrt{15}$

$18(2)\sqrt{15}$

$\boxed{36\sqrt{15}}$

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5. $\sqrt{8}\left(\sqrt{6} + \sqrt{10}\right)$

$\sqrt{8}(\sqrt{6}) + \sqrt{8}(\sqrt{10})$

$\sqrt{48} + \sqrt{80}$

$\sqrt{16}\sqrt{3} + \sqrt{16}\sqrt{5}$

$\boxed{4\sqrt{3} + 4\sqrt{5}}$

6. $\sqrt{3}\left(\sqrt{6} - \sqrt{15}\right)$

$\sqrt{3}(\sqrt{6}) + \sqrt{3}(-\sqrt{15})$

$\sqrt{18} - \sqrt{45}$

$\sqrt{9}\sqrt{2} - \sqrt{9}\sqrt{5}$

$\boxed{3\sqrt{2} - 3\sqrt{5}}$

HOMEWORK

Worksheet 1.7 Radical Review