

Radical Review

Try 1 and 2.

$$1.) \sqrt{20} = \sqrt{4} \cdot \sqrt{5} = \boxed{2\sqrt{5}}$$

$$2.) \sqrt{x^2} = \boxed{x}$$

$$3.) \sqrt{x^3} = \sqrt{x^2} \cdot \sqrt{x} = \boxed{x\sqrt{x}}$$

$$4.) \sqrt{4} \cdot \sqrt{4} = \boxed{4}$$

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$$5.) \sqrt{500} = \sqrt{100} \cdot \sqrt{5} = \boxed{10\sqrt{5}}$$

$$6.) \frac{3}{\sqrt{2}} \cdot \sqrt{2} = \boxed{\frac{3\sqrt{2}}{2}}$$

$$7.) \sqrt{\frac{48}{72}} = \frac{\sqrt{48}}{\sqrt{72}} = \frac{\sqrt{4} \cdot \sqrt{12}}{\sqrt{9} \cdot \sqrt{8}} = \frac{2 \cdot \sqrt{4} \cdot \sqrt{3}}{3\sqrt{8}} = \frac{4\sqrt{3}}{3\sqrt{4} \cdot \sqrt{2}}$$

$$\stackrel{?}{=} \frac{4\sqrt{3}}{6\sqrt{2}} = \frac{2\sqrt{3}}{3\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{6}}{3 \cdot 2} = \boxed{\frac{\sqrt{6}}{3}}$$

$$8.) \sqrt{k^5} = \sqrt{k^4 \cdot k} = k^2 \sqrt{k}$$

$$9.) \sqrt{72c^6} = \sqrt{9 \cdot 8} \cdot c^3$$

$$= 3\sqrt{4} \cdot \sqrt{2} \cdot c^3$$

$$= 3 \cdot 2 \cdot \sqrt{2} \cdot c^3$$

$$= 6c^3 \sqrt{2}$$

$$10.) \frac{\sqrt{108}}{\sqrt{2x^6}}$$

$$= \frac{\sqrt{36 \cdot 3}}{\sqrt{2} \cdot \sqrt{x^6}} = \frac{6\sqrt{3}}{x^3 \sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{6\sqrt{6}}{2x^3} = \frac{3\sqrt{6}}{x^3}$$