

Algebra II

6-3

Sums of Radicals

Simplify.

$$\sqrt{2} + \sqrt{2} = 2\sqrt{2}$$

$$\sqrt{2} + \sqrt{3} = \text{can't do (as is)}$$

$$\sqrt{2} + \sqrt[3]{2} = \text{can't do (as is)}$$

Simplify.

1) $\sqrt{50} + \sqrt{18}$

$$\begin{aligned} &\sqrt{25 \cdot 2} + \sqrt{9 \cdot 2} \\ &5\sqrt{2} + 3\sqrt{2} \\ &8\sqrt{2} \end{aligned}$$

17) $\sqrt[3]{4} + \sqrt[3]{\frac{1}{2}}$

$$\begin{aligned} &\sqrt[3]{4} + \frac{\sqrt[3]{4}}{\sqrt[3]{2}} \\ &\frac{\sqrt[3]{4} + \sqrt[3]{4}}{\sqrt[3]{2}} = \frac{2\sqrt[3]{4} + \sqrt[3]{4}}{2} \\ &\frac{2\sqrt[3]{4} + \sqrt[3]{4}}{2} = \boxed{\frac{3\sqrt[3]{4}}{2}} \end{aligned}$$

25) $\frac{\sqrt{6} - \sqrt{24}}{\sqrt{2}}$

$$\begin{aligned} &\frac{\sqrt{3} - \sqrt{12}}{\sqrt{3} - \sqrt{4 \cdot 3}} \\ &\frac{\sqrt{3} - 2\sqrt{3}}{\sqrt{3} - 2\sqrt{3}} \\ &\boxed{-\sqrt{3}} \end{aligned}$$

31) $\sqrt[5]{(\sqrt[3]{200} - \sqrt[3]{16})}$

$$\begin{aligned} &\sqrt[5]{1000 - \sqrt[3]{80}} \\ &10 - \sqrt[3]{8 \cdot 10} \\ &\boxed{10 - 2\sqrt[3]{10}} \end{aligned}$$

37) $\sqrt{p^3r} + \sqrt{pr^3}$

$$\begin{aligned} &\sqrt{p^2pr} + \sqrt{pr^2r} \\ &|p|\sqrt{pr} + |r|\sqrt{pr} \end{aligned}$$

$$\boxed{(|p| + |r|)\sqrt{pr}}$$

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2-4 even