

## 1.1 Radicals Review

$$1. \frac{\sqrt{72}}{\sqrt{36} \cdot \sqrt{2}}$$

$$6\sqrt{2}$$

$$2. \frac{\sqrt{54y^2}}{\sqrt{9} \cdot \sqrt{6} \cdot \sqrt{y^2}}$$

$$3 \cdot \sqrt{6} \cdot y$$

$$3y\sqrt{6}$$

$$3. \frac{\sqrt{45m^4}}{\sqrt{9} \cdot \sqrt{5} \cdot \sqrt{m^4}}$$

$$3\sqrt{5} \cdot m^2$$

$$3m^2\sqrt{5}$$

$$4. \frac{\sqrt{27x^2y^3}}{\sqrt{9} \cdot \sqrt{3} \cdot \sqrt{x^2} \cdot \sqrt{y^3}}$$

$$3 \cdot \sqrt{3} \cdot x \cdot y\sqrt{y}$$

$$3xy\sqrt{3y}$$

$$5. \frac{\sqrt{50}}{\sqrt{25} \sqrt{2}}$$

$$5\sqrt{2}$$

$$6. \frac{4\sqrt{2} \cdot \sqrt{6}}{4\sqrt{2}}$$

$$4 \cdot \sqrt{4} \cdot \sqrt{3}$$

$$4 \cdot 2 \cdot \sqrt{3}$$

$$8\sqrt{3}$$

$$7. \frac{2\sqrt{3} \cdot 7\sqrt{5}}{14\sqrt{15}}$$

$$8. \frac{\sqrt[3]{81x^4}}{\sqrt[3]{81} \sqrt[3]{x^4}}$$

$$9^{\wedge} 9$$

$$\Delta \begin{matrix} 3 & 3 & 3 \\ 3 & 3 & 3 \end{matrix}$$

$$3\sqrt[3]{3} \cdot x\sqrt[3]{x}$$

$$3x\sqrt[3]{3x}$$

$$9. \frac{\sqrt{\frac{28}{x^4}}}{\sqrt{x^4}} = \frac{\sqrt{28}}{\sqrt{x^4}} = \frac{\sqrt{4} \cdot \sqrt{7}}{x^2}$$

$$\frac{2\sqrt{7}}{x^2}$$

$$10. \frac{\sqrt{\frac{27}{b^2}}}{\sqrt{\frac{27}{b^2}}} = \frac{\sqrt{27}}{\sqrt{b^2}} = \frac{\sqrt{9} \cdot \sqrt{3}}{b}$$

$$\frac{3\sqrt{3}}{b}$$

$$11. \frac{\sqrt{2} \cdot \sqrt{5}}{\sqrt{5} \sqrt{5}} = \frac{\sqrt{10}}{5}$$

$$12. \frac{\sqrt{72x^3}}{\sqrt{8x}} = \sqrt{\frac{72x^3}{8x}}$$

$$= \sqrt{9x^2} = 3x$$

$$13. \frac{3}{3+\sqrt{7}} \cdot \frac{(3-\sqrt{7})}{(3-\sqrt{7})}$$

$$= \frac{9-3\sqrt{7}}{9+3\sqrt{7}-3\sqrt{7}-\sqrt{49}}$$

$$= \frac{9-3\sqrt{7}}{9-7} = \frac{9-3\sqrt{7}}{2}$$

$$14. \frac{13}{3+\sqrt{11}} \cdot \frac{(3-\sqrt{11})}{(3-\sqrt{11})}$$

$$= \frac{13(3-\sqrt{11})}{9+3\sqrt{11}-3\sqrt{11}-\sqrt{121}}$$

$$= \frac{39-13\sqrt{11}}{9-11} = \frac{39-13\sqrt{11}}{-2}$$

$$= \frac{-39+13\sqrt{11}}{2} \text{ or } \frac{13\sqrt{11}-39}{2}$$

$$15. \frac{5}{\sqrt{3}-1} \cdot \frac{(\sqrt{3}+1)}{(\sqrt{3}+1)}$$

$$= \frac{5\sqrt{3}+5}{3-\sqrt{3}+\sqrt{3}-1}$$

$$= \frac{5\sqrt{3}+5}{2}$$