

Algebra II
Section 8-2 & 8-3
Review A15

Name KEY

Simplify.

$$1) \quad -\sqrt{0.81}$$

$$= -0.9$$

$$2) \quad \pm\sqrt[4]{1296}$$

$$= \pm 6$$

$$3) \quad \sqrt{49m^2t^8}$$

$$= 7|m|t^4$$

$$4) \quad \sqrt[3]{-64r^6w^{15}}$$

$$= -4r^2w^5$$

$$5) \quad \sqrt{\frac{16m^2}{25}} = \frac{\sqrt{16m^2}}{\sqrt{25}}$$

$$= \frac{4|m|}{5}$$

$$6) \quad \sqrt[3]{-32x^5y^{10}}$$

$$= -2xy^2$$

$$7) \quad \sqrt[3]{128}$$

$$= \sqrt[3]{64} \sqrt[3]{2}$$

$$= 4\sqrt[3]{2}$$

$$8) \quad \sqrt[3]{8g^3k^8}$$

$$= \sqrt[3]{8g^3k^6} \sqrt[3]{k^2}$$

$$= 2gk^2\sqrt[3]{k^2}$$

$$9) \quad \sqrt{\frac{9a^5}{64b^4}}$$

$$= \frac{\sqrt{9a^4} \sqrt{a}}{\sqrt{64b^4}}$$

$$= \frac{3a^2\sqrt{a}}{8b^2}$$

$$10) \quad (3\sqrt{15})(-4\sqrt{45})$$

$$= 3(-4)\sqrt{3}\sqrt{5}\sqrt{5}\sqrt{9}$$

$$= 3(-4)(5)(3)\sqrt{3}$$

$$= -180\sqrt{3}$$

$$11) \quad \sqrt[4]{ab^6} \cdot \sqrt[4]{a^2} \cdot \sqrt[4]{ab^3}$$

$$= \sqrt[4]{a^4b^9}$$

$$= \sqrt[4]{a^4b^8} \sqrt[4]{b}$$

$$= |a|b^2\sqrt[4]{b}$$

$$12) \quad \frac{2 \cdot \sqrt{11}}{\sqrt{11} \cdot \sqrt{11}}$$

$$= \frac{2\sqrt{11}}{11}$$

$$13) \quad \sqrt[3]{\frac{8}{9}} = \frac{\sqrt[3]{8}}{\sqrt[3]{9}}$$

$$= \frac{2 \cdot \sqrt[3]{3}}{\sqrt[3]{9} \cdot \sqrt[3]{3}}$$

$$= \frac{2\sqrt[3]{3}}{\sqrt[3]{27}} = \frac{2\sqrt[3]{3}}{3}$$

$$14) \quad (5+\sqrt{6})(3+\sqrt{6})$$

$$= 15 + 5\sqrt{6} + 3\sqrt{6} + \sqrt{36}$$

$$= 15 + 8\sqrt{6} + 6$$

$$= 21 + 8\sqrt{6}$$

$$15) \quad (1-4\sqrt{2})^2$$

$$= (1-4\sqrt{2})(1-4\sqrt{2})$$

$$= 1 - 4\sqrt{2} - 4\sqrt{2} + 16\sqrt{4}$$

$$= 1 - 8\sqrt{2} + 16(2)$$

$$= 33 - 8\sqrt{2}$$

$$\begin{aligned}
 16) \quad & (\sqrt{2} - \sqrt{10})(\sqrt{2} + \sqrt{10}) \\
 &= \sqrt{4} + \sqrt{20} - \sqrt{20} - \sqrt{100} \\
 &= 2 - 10 \\
 &= -8
 \end{aligned}$$

$$\begin{aligned}
 17) \quad & \frac{6}{\sqrt{2}-1} (\sqrt{2}+1) \\
 &= \frac{6\sqrt{2}+6}{\sqrt{4}-1} \\
 &= \frac{6\sqrt{2}+6}{2-1} \\
 &= 6\sqrt{2}+6
 \end{aligned}$$

$$\begin{aligned}
 18) \quad & \frac{5+\sqrt{3}}{4+\sqrt{3}} (4-\sqrt{3}) \\
 &= \frac{20-5\sqrt{3}+4\sqrt{3}-\sqrt{9}}{16-\sqrt{9}} \\
 &= \frac{20-\sqrt{3}-3}{16-3} \\
 &= \frac{17-\sqrt{3}}{13}
 \end{aligned}$$

$$\begin{aligned}
 19) \quad & \sqrt[3]{7} - 5\sqrt[3]{7} \\
 &= -4\sqrt[3]{7}
 \end{aligned}$$

$$\begin{aligned}
 20) \quad & 6\sqrt{20} + 8\sqrt{5} - 5\sqrt{45} \\
 &= 6\sqrt{4}\sqrt{5} + 8\sqrt{5} - 5\sqrt{9}\sqrt{5} \\
 &= 6(2)\sqrt{5} + 8\sqrt{5} - 5(3)\sqrt{5} \\
 &= 12\sqrt{5} + 8\sqrt{5} - 15\sqrt{5} \\
 &= 5\sqrt{5}
 \end{aligned}$$

$$\begin{aligned}
 21) \quad & 7\sqrt[3]{54} + \sqrt[3]{128} \\
 &= 7\sqrt[3]{27}\sqrt[3]{2} + \sqrt[3]{64}\sqrt[3]{2} \\
 &= 7(3)\sqrt[3]{2} + 4\sqrt[3]{2} \\
 &= 21\sqrt[3]{2} + 4\sqrt[3]{2} \\
 &= 25\sqrt[3]{2}
 \end{aligned}$$

$$\begin{aligned}
 22) \quad & 8\sqrt{48} - 6\sqrt{75} + 7\sqrt{80} \\
 &= 8\sqrt{16}\sqrt{3} - 6\sqrt{25}\sqrt{3} + 7\sqrt{16}\sqrt{5} \\
 &= 8(4)\sqrt{3} - 6(5)\sqrt{3} + 7(4)\sqrt{5} \\
 &= 32\sqrt{3} - 30\sqrt{3} + 28\sqrt{5} \\
 &= 2\sqrt{3} + 28\sqrt{5}
 \end{aligned}$$

$$\begin{aligned}
 23) \quad & \sqrt{2} + \sqrt{8} + \sqrt[3]{8} \\
 &= \sqrt{2} + \sqrt{4}\sqrt{2} + 2 \\
 &= \sqrt{2} + 2\sqrt{2} + 2 \\
 &= 3\sqrt{2} + 2
 \end{aligned}$$

$$\begin{aligned}
 24) \quad & 5(10-2\sqrt{6}) + \sqrt{54} \\
 &= 50 - 10\sqrt{6} + \sqrt{9}\sqrt{6} \\
 &= 50 - 10\sqrt{6} + 3\sqrt{6} \\
 &= 50 - 7\sqrt{6}
 \end{aligned}$$