

7.1 Review

9. $\sqrt[3]{8x^4y^9z^{11}}$

$2x^1y^3z^3 \sqrt[3]{xz^2}$

10. $\sqrt[4]{32x^4y^5z^9}$

$\sqrt[4]{16 \cdot 2x^4y^5z^9}$

$2xy^2z^2 \sqrt[4]{2yz}$

8. $\sqrt{64b^7}$
 $8b^3\sqrt{b}$

2. $\sqrt[3]{\frac{-27}{216}} = \frac{-3}{6}$

4. $-\sqrt[3]{64} = -4$

5. $\sqrt[3]{-64} = -4$

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7.2
6.

$\frac{\sqrt[4]{3xy^2}}{\sqrt[4]{5x^2y^7}}$

$= \frac{\sqrt[4]{3}}{\sqrt[4]{5xy^5}}$

$= \frac{\sqrt[4]{5^3x^3y^3}}{\sqrt[4]{5^3x^3y^3}}$

$\frac{\sqrt[4]{375x^3y^3}}{\sqrt[4]{625x^4y^8}}$

$\frac{\sqrt[4]{375x^3y^3}}{5xy^2}$

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7.2
 ② $\sqrt{7x^5} \cdot \sqrt{42xy^9} = \sqrt{294x^6y^9}$

$$7\sqrt{6x^6y^9}$$

$$7x^3y^4\sqrt{6y}$$

5. $\frac{\sqrt[3]{5}}{\sqrt[3]{3x}} \cdot \frac{\sqrt[3]{3x}}{\sqrt[3]{3x}} \cdot \frac{\sqrt[3]{3x}}{\sqrt[3]{3x}}$

$$= \frac{\sqrt[3]{45x^2}}{\sqrt[3]{27x^3}} = \frac{\sqrt[3]{45x^2}}{3x}$$

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7.3
 ③ $3\sqrt[3]{81} - 2\sqrt[3]{54}$

$$3\sqrt[3]{27 \cdot 3} - 2\sqrt[3]{27 \cdot 2}$$

$$\boxed{9\sqrt[3]{3} - 6\sqrt[3]{2}}$$

4. $(3 + \sqrt{5})(1 + \sqrt{5})$

$$3 + 3\sqrt{5} + 1\sqrt{5} + 5$$

$$8 + 4\sqrt{5}$$

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7.3

$$\frac{5 + \sqrt{3}}{2 - \sqrt{3}} \cdot \frac{2 + \sqrt{3}}{2 + \sqrt{3}}$$

7.4

$$3. t^{-3/4} = \frac{1}{\sqrt[4]{t^3}} \cdot \frac{\sqrt[4]{t}}{\sqrt[4]{t}} = \frac{\sqrt[4]{t}}{t}$$

5. $\sqrt[4]{c^2} = c^{2/4} = c^{1/2}$

① $3^{1/3} \cdot 9^{1/3} = 3^{1/3} \cdot 3^{2/3} = 3^{1/3+2/3} = 3^1 = 3$

$\sqrt[3]{3} \cdot \sqrt[3]{9} = \sqrt[3]{3 \cdot 9} = \sqrt[3]{27} = 3$

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9. $y^{1/2} \cdot y^{3/10} = y^{5/10 + 3/10} = y^{8/10} = y^{4/5}$
 or $\sqrt[5]{y^4}$

10. $\left(\frac{x^3}{x^4}\right)^{-1/4} = (x^{-1})^{-1/4} = x^{1/4} = \sqrt[4]{x}$

8. $(x^{2/3})^{-3/2} = x^{-2} = \frac{1}{x^2}$

$3x^{-2} = \frac{3}{x^2}$

12. $(x^{1/2})^{2/3} = x^{2/6} = x^{1/3} = \sqrt[3]{x}$

13. $(3x^{2/5})^2 = 3^2 x^{4/5} = 9x^{4/5}$
 $\frac{9\sqrt[5]{x^4}}{9x\sqrt[5]{x^2}}$

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$$f \circ g$$
$$f(g(x))$$

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