Review 7-1/7-3
Algebra II

Key

Use a separate sheet of paper to answer the following questions.

Section 7 - 1

1. Find all the real square roots of each number.
   a. 121 ± 11 b. –49 none c. 64 ± 8 d. $-\frac{1}{25}$ none
2. Find all the real cube roots of each number.
   a. –8000 -20 b. $\frac{1}{216}$ $\frac{1}{6}$
3. Find each real-number root.
   a. $\sqrt{0.49}$ .7 b. $\sqrt[3]{125}$ 5 c. $-\sqrt{81}$ -9 d. $\sqrt[4]{-625}$ none
4. Simplify each radical expression.
   a. $\sqrt[3]{-8x^3}$ $-2x$ b. $\sqrt{16y^4}$ $4y^2$ c. $\sqrt{36x^{14}}$ $6|x^7|$
5. The formula for the volume of a cone with a base of radius r and height r is $V = \frac{1}{3}\pi r^3$. Find the radius to the nearest hundredth of a centimeter if the volume is 40 cm^3. about 3.37cm

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Section 7 - 2

Assume that all variables are positive.

1. Multiply. Simplify if possible.
   a. $\sqrt{5} \cdot \sqrt{45}$ 15 b. $\sqrt[3]{4} \cdot \sqrt[3]{2000}$ 20
2. Simplify.
   a. $\sqrt{8x^5}$ $2x^2\sqrt{2x}$ b. $\sqrt[3]{-243x^3y^{10}}$ $-3xy^3\sqrt[3]{9y}$
3. Multiply and simplify.
   a. $\sqrt{18x^3} \cdot \sqrt{2x^2y^3}$ $6xy^2\sqrt{xy}$ b. $\sqrt[3]{10x^2y^4} \cdot \sqrt[3]{4x^2y}$ $2xy\sqrt[3]{5xy^2}$
4. Divide and simplify.
   a. $\frac{\sqrt{128x^3}}{\sqrt{2xy}}$ $\frac{8x\sqrt{y}}{y}$ b. $\frac{\sqrt[3]{270x}}{\sqrt[3]{10xy^2}}$ $\frac{3\sqrt[3]{y}}{y}$
5. Rationalize the denominator of each expression.
   a. $\frac{\sqrt{7x}}{\sqrt{3}}$ $\frac{\sqrt{21x}}{3}$ b. $\frac{\sqrt[3]{x^2}}{\sqrt[3]{4}}$ $\frac{\sqrt[3]{2x^2}}{2}$