

Algebra II

6-2

Properties of Radicals

A radical expression is in *Simplest Radical Form* when:

- 1) No perfect Square Factors allowed under a radical.
 $\sqrt{8} = \sqrt{4 \cdot 2} = 2\sqrt{2}$
- 2) No Fractions under a radical.
 $\sqrt{\frac{3}{16}} = \frac{\sqrt{3}}{\sqrt{16}} = \frac{\sqrt{3}}{4}$
- 3) No radicals allowed in the denominator.
 $\frac{1}{\sqrt{2} \cdot \sqrt{2}} = \frac{\sqrt{2}}{2}$

Simplify. (pg 267)

1) $\sqrt{52}$

$$\frac{\sqrt{4 \cdot 13}}{2\sqrt{13}}$$

15) $\sqrt{30} \cdot \sqrt{42}$

$$\frac{\sqrt{5 \cdot 6} \cdot \sqrt{6 \cdot 7}}{\sqrt{36} \cdot \sqrt{35}} = 6\sqrt{35}$$

Simplify.

29) $\sqrt[3]{\frac{60}{36}}$

$$= \frac{\sqrt[3]{5} \cdot \sqrt[3]{9}}{\sqrt[3]{3} \cdot \sqrt[3]{9}}$$

39) $\sqrt{18x^2}$

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

Cubes

1	1
2	8
3	27
4	64
5	125
6	216

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

Simplify.

59) $\sqrt{27x^3y}$

$$\frac{\sqrt{9 \cdot 3 \cdot x^2 \cdot x \cdot y}}{3|x| \sqrt{3x}} = \frac{3|x| \sqrt{3x}}{3|x| \sqrt{3x}}$$

Use a calculator to estimate:

33) $\sqrt{39} \approx 6.24$

Evaluate the following radicals if $x = 4$, $y = 3$, and $z = 8$.

51) $\sqrt{x^{-1}y^{-2}}$

$$= \sqrt{4^{-1} \cdot 3^{-2}} = \sqrt{\frac{1}{4} \cdot \frac{1}{9}} = \frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$$

Assignment:

Pg. 267

2-66 even