

# Algebra I

11-7

## Multiplying and Dividing with Radicals

Multiplying Radicals -

$$(3\sqrt{2})(4\sqrt{7})$$

a)  $12\sqrt{14}$

b)  $44.90$

Dividing Radicals -

$$\frac{15\sqrt{124}}{2\sqrt{3}} = \frac{15\sqrt{4}}{2} = \frac{15 \cdot 2}{2} = 15$$

Simplifying Radicals -

- 1) No perfect square factors allowed under the radical.

$$\sqrt{12} = \sqrt{4 \cdot 3} = 2\sqrt{3}$$

- 2) No Fractions allowed under the radical.

$$\sqrt{\frac{3}{4}} = \frac{\sqrt{3}}{\sqrt{4}} = \frac{\sqrt{3}}{2}$$

- 3) No radicals allowed in the denominator.  
(bottom of a fraction.)

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

Simplify. For each do part

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- a) simplified,  
b) as a decimal to the nearest hundredth.

5)  $2\sqrt{5} \cdot \sqrt{7}$

a)  $2\sqrt{35}$

b)  $11.83$

Simplify. For each do part

- a) simplified,  
b) as a decimal to the nearest hundredth.

15)  $\sqrt{\frac{8}{11}} \cdot \sqrt{\frac{22}{92}} = \sqrt{\frac{1}{2}} = \frac{\sqrt{1}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

b)  $0.71$

Simplify. For each do part

- a) simplified,  
b) as a decimal to the nearest hundredth.

21)  $\sqrt{\frac{105}{13}} \cdot \sqrt{\frac{1}{21}} = \frac{\sqrt{5} \sqrt{3}}{\sqrt{13} \sqrt{3}} = \frac{\sqrt{65}}{13}$

b)  $0.62$

Simplify. For each do part

a) simplified,

b) as a decimal to the nearest hundredth.

1,48  
4,12  
16,3

$$25) 3\sqrt{\frac{48}{9}} = \frac{3\sqrt{48}}{\sqrt{9}} = \frac{3\sqrt{48}}{3} = \sqrt{16 \cdot 3} = \boxed{4\sqrt{3}}$$

b) 6.93

Simplify. (no part b)

$$33) (4\sqrt{a^2b})(3\sqrt{b})$$

$$12\sqrt{a^2b^2}$$

$$12|ab|$$

Simplify. (no part b)

$$41) \sqrt{32} \cdot \sqrt{2x} \cdot \sqrt{3x}$$

$$\sqrt{64 \cdot 3 \cdot x^2}$$

$$8|x|\sqrt{3}$$

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2-46 even

(part a up to 32)