

Name: _____ Date: _____ Hour: _____

Algebra 2 -

"Multiplying and Simplifying Radical Expressions"

Objectives

- 1 Use the product rule to multiply radicals.
- 2 Use factoring and the product rule to simplify radicals.
- 3 Multiply radicals and then simplify.

Perfect Squares

$1^2 = 1$

$2^2 = 4$

$3^2 = 9$

$4^2 = 16$

$5^2 = 25$

$6^2 = 36$

$7^2 = 49$

$8^2 = 64$

$9^2 = 81$

$10^2 = 100$

$11^2 = 121$

$12^2 = 144$

$13^2 = 169$

$14^2 = 196$

$15^2 = 225$

$16^2 = 256$

$17^2 = 289$

$18^2 = 324$

$19^2 = 361$

$20^2 = 400$

Steps for simplifying radicals:

1. Find the perfect square that divides evenly into the radicand (number under the radical symbol).
2. Rewrite the radical as two radicals multiplied together, one with the perfect square and the other number used to multiply to the radicand.
3. Take the square root of the perfect square and write that in front of the left over radical.

Example 1 Simplify each radical:

a. $\sqrt{12}$

$$\sqrt{4} \cdot \sqrt{3}$$

$$\boxed{2\sqrt{3}}$$

b. $\sqrt{72}$

$$\sqrt{36} \cdot \sqrt{2}$$

$$\boxed{6\sqrt{2}}$$

c. $\sqrt{294}$

$$\sqrt{49} \cdot \sqrt{6}$$

$$\boxed{7\sqrt{6}}$$

Simplify.

1) $\sqrt{75}$

2) $\sqrt{16}$

3) $\sqrt{36}$

4) $\sqrt{64}$

5) $\sqrt{80}$

6) $\sqrt{30}$

7) $\sqrt{8}$

8) $\sqrt{18}$

9) $\sqrt{32}$

10) $\sqrt{12}$

11) $\sqrt{8}$

12) $\sqrt{108}$

13) $\sqrt{125}$

14) $\sqrt{50}$

15) $\sqrt{175}$

16) $\sqrt{28}$

17) $\sqrt{45}$

18) $\sqrt{72}$

19) $\sqrt{20}$

20) $\sqrt{150}$