Simplifying Radicals

Procedure:

1. **Rewrite the radicand as a product of a perfect square and some other number.**
2. **Take the square root of the perfect square.**
3. **Leave the other number in the radical.**

Example: **Simplify $\sqrt{80}$**

$$\sqrt{80} = \sqrt{16 \times 5}$$
$$= 4\sqrt{5}\ .$$

Perfect Squares

$1^2 = 1$	$6^2 = 36$
$2^2 = 4$	$7^2 = 49$
$3^2 = 9$	$8^2 = 64$
$4^2 = 16$	$9^2 = 81$
$5^2 = 25$	$10^2 = 100$

Simplify.

1. $\sqrt{81}$ **2.** $\sqrt{40}$ **3.** $\sqrt{99}$

4. $\sqrt{49}$ **5.** $\sqrt{75}$ **6.** $\sqrt{64}$

7. $\sqrt{180}$ **8.** $\sqrt{100}$ **9.** $\sqrt{81}$

10. $\sqrt{112}$ **11.** $\sqrt{36}$ **12.** $\sqrt{128}$

13. $\sqrt{700}$ **14.** $\sqrt{243}$ **15.** $\sqrt{294}$

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1. **Rewrite the radicand as a product of a perfect square and some other number.**
2. **Take the square root of the perfect square.**
3. **Leave the other number in the radical.**

Example: **Simplify $\sqrt{45}$**

$$\sqrt{45} = \sqrt{9x5}$$
$$= 3\sqrt{5}\ .$$

Perfect Squares

$1^2 = 1$	$6^2 = 36$
$2^2 = 4$	$7^2 = 49$
$3^2 = 9$	$8^2 = 64$
$4^2 = 16$	$9^2 = 81$
$5^2 = 25$	$10^2 = 100$

Simplify.

1. $\sqrt{64}$ **2.** $\sqrt{40}$ **3.** $\sqrt{54}$

4. $\sqrt{36}$ **5.** $\sqrt{50}$ **6.** $\sqrt{64}$

7. $\sqrt{150}$ **8.** $\sqrt{100}$ **9.** $\sqrt{16}$

10. $\sqrt{32}$ **11.** $\sqrt{80}$ **12.** $\sqrt{128}$

13. $\sqrt{300}$ **14.** $\sqrt{24}$ **15.** $\sqrt{27}$

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