

Simplifying Radicals Notes

Name _____ Date _____

Parts of a Radical

$$\text{root} \sqrt{\text{radicand}}$$

If there's no number at the root, then it's a 2.

Simplify Radicals

- Look for the largest perfect square that is a factor.
- Factor, using the perfect square as one of the factors.
- Take the square root of the perfect square that is a factor.
- Write the square root as a factor in front of the radical and leave the other factor under the radical. If there is another factor in front of the radical, multiply the square root by it.

You should have the perfect squares up to 15 memorized.

$1^2 = 1$	$9^2 = 81$
$2^2 = 4$	$10^2 = 100$
$3^2 = 9$	$11^2 = 121$
$4^2 = 16$	$12^2 = 144$
$5^2 = 25$	$13^2 = 169$
$6^2 = 36$	$14^2 = 196$
$7^2 = 49$	$15^2 = 225$
$8^2 = 64$	

Examples:

1. $\sqrt{64} = \boxed{8}$

4. $\sqrt{72} = \sqrt{36 \cdot 2} = \boxed{6\sqrt{2}}$

2. $5\sqrt{8} = 5\sqrt{4 \cdot 2} = \boxed{10\sqrt{2}}$
 $\times 2$

5. $2\sqrt{196} = 2 \cdot 14 = \boxed{28}$

3. $\sqrt{45} = \sqrt{9 \cdot 5} = \boxed{3\sqrt{5}}$

6. $3\sqrt{150} = 3\sqrt{25 \cdot 6} = \boxed{15\sqrt{6}}$
 $\times 5$