Algebra 1: 12.6 Notes & Practice **Name** ______________________________ **Period** _____

Approximating and Rewriting Radicals

Main Ideas/Questions	Notes/Examples
WARM UP	**Directions:** Simplify.
	1. $(8)^2 =$ ________ 2. $(-8)^2 =$ ________ 64 is a perfect square!
VOCABULARY See page 763.	A ***radical expression*** involves a radical symbol. radical symbol → $\sqrt{64}$ ← radicand A number b is the ***square root*** of a if $b^2 = a$. The square root of 64 is 8 if $8^2 = 64$. In other words, $\sqrt{64} = 8$. If $(-8)^2 = 64$, then is –8 also the square root of 64? __________ Why or why not? ____ ____ There are 2 square roots for every whole number, a ***positive square root*** called the ______________________________________ and a negative square root.
EXAMPLES	**Finding the Square Root of Perfect Squares** **Directions:** Solve each equation by extracting the square root.
	1. $\sqrt{16} = \pm 4$ 2. $\sqrt{25} =$ _______
	3. $\sqrt{36} =$ _______ 4. $\sqrt{0} =$ _______
	These are all perfect squares!
Rewriting Radicals	**Rewriting Radicals by Extracting Perfect Squares** ♦ Simplify a radical to find an ***exact*** answer. Accuracy is important! ♦ Try to factor out the perfect square(s).
EXAMPLES	**Directions:** Rewrite each radical by extracting the perfect squares.
	1. $\sqrt{20}$ $\sqrt{4} \bullet \sqrt{5}$ 4 is a perfect square! $2\sqrt{5}$ 2. $\sqrt{45}$

	3. $\sqrt{50}$	4. $\sqrt{27}$
	5. $\sqrt{48}$	6. $\sqrt{24}$
Approximating Radicals	You can ***estimate*** the square root of a number using a calculator and rounding the answer.	
EXAMPLES	**Directions:** Determine the square root of each radical by finding an approximate value. Round to the nearest 10^{th}.	
	1. $\sqrt{20}$ ≈ 4.5	2. $\sqrt{45}$
	3. $\sqrt{50}$	4. $\sqrt{27}$
EXIT SLIP	This summer, new square floor tiles will be installed in each classroom. The area of each tile is 18 $inches^2$. Determine the exact and the approximate length of the tile's side.	