Name: Date: Period:

Multiplying and Dividing Radicals: Reminder: coefficient$\sqrt{radicand}$

[1] Multiply or Divide Coefficients – Keep them as coefficients.

[2] Multiply or Divide Radicands – Keep them as radicands

[3] SIMPLIFY!!!

Examples:

1. $(\sqrt{7})(\sqrt{7})$	2. $(2\sqrt{18})(3\sqrt{8})$	3. $(\frac{2}{3}\sqrt{24})(9\sqrt{3})$
4. $(\sqrt{t})^2$	5. $(3\sqrt{6})^2$	6. $(5+\sqrt{3})(4+\sqrt{3})$
7. $\frac{\sqrt{72}}{\sqrt{8}}$	8. $\frac{8\sqrt{48}}{2\sqrt{3}}$	9. $\frac{\sqrt{20}}{\sqrt{2}}$
10. $\frac{\sqrt{90}}{\sqrt{5}}$	11. $\frac{\sqrt{98}+\sqrt{18}}{\sqrt{2}}$	12. $\frac{10\sqrt{8}}{5\sqrt{2}}$

Rationalizing the Denominator: When you have a radical ($\sqrt{\ }$) left on the **bottom** of a fraction, you must <u>rationalize the denominator</u> (eliminate the radical on the bottom). The simplest way to do this is to multiply **<u>BOTH</u>** the numerator and denominator by the radical in the denominator, forcing a perfect square. When simplified, this eliminates the radical. Consider the following examples that illustrate rationalizing the denominator.

Example 1:	Example 2:	Example 3:
$\frac{12}{\sqrt{5}}$	$\frac{\sqrt{10}}{\sqrt{11}}$	$\frac{2}{2a\sqrt{5}}$
$\frac{12}{\sqrt{5}} \bullet \frac{\sqrt{5}}{\sqrt{5}} = \frac{12\sqrt{5}}{\sqrt{25}} = \frac{12\sqrt{5}}{5}$	$\frac{\sqrt{10}}{\sqrt{11}} \bullet \frac{\sqrt{11}}{\sqrt{11}} = \frac{\sqrt{110}}{\sqrt{121}} = \frac{\sqrt{110}}{11}$	$\frac{2}{2a\sqrt{5}} \bullet \frac{\sqrt{5}}{\sqrt{5}} = \frac{2\sqrt{5}}{2a\sqrt{25}} = \frac{2\sqrt{5}}{2a \cdot 5} = \frac{2\sqrt{5}}{10a} = \frac{\sqrt{5}}{5a}$

You Try:

1. $\frac{8}{\sqrt{3a}}$	2. $\frac{3}{2\sqrt{3}}$