WILLIAM D. LAW, JR. LEARNING COMMONS

Simplifying Square Roots (short version)

Use the following step-by-step procedure to "simplify" an expression involving radicals:

$$3x\sqrt{8x^5y^{12}}$$

$3x\sqrt{2^3\ x^5\ y^{12}}$	1. Write the expression under the radical in exponential form by prime factoring.
$3x\sqrt{2^2\ 2^1\ x^4\ x^1\ y^{12}}$	2. Rewrite the exponents of the radicand with even exponents that are less than or equal to the original exponents.
$3x\sqrt{2^2\ x^4\ y^{12}}\sqrt{2^1\ x^1}$	3. Separate perfect squares (i.e., even exponents) from odd exponents
$3x\ 2^1x^2y^6\sqrt{2^1x^1}$	4. Take square root of the perfect squares.
$\boxed{6x^3y^6\sqrt{2x}}$	5. Simplify.

<u>The radical part is now "simplified".</u>

This instructional aid was prepared by the Tallahassee Community College Learning Commons.