

Math-2A Properties 3-1 (Radicals)

Product of Radicals Property: the product square roots is equivalent to the square root of the product of the radicands. It's easier to see this as an expression: $\sqrt{a} * \sqrt{b} \rightarrow \sqrt{a*b}$

A nice example: $\sqrt{4} * \sqrt{9} \rightarrow \sqrt{4*9}$
 $2 * 3 \rightarrow \sqrt{36}$
 $2 * 3 \rightarrow 6$

An example: $\sqrt{5} * \sqrt{2} = \sqrt{10}$

We use this property when simplifying radicals:

$$\sqrt{18} \rightarrow \sqrt{9} * \sqrt{2} \rightarrow 3 * \sqrt{2} \rightarrow 3\sqrt{2}$$

$$3\sqrt{32x^2} \rightarrow 3 * \sqrt{16} * \sqrt{x^2} * \sqrt{2} \rightarrow 3*4*x*\sqrt{2} \rightarrow 12x\sqrt{2}$$

This is NOT a property of radicals. NEVER DO THIS!!!!

$$\sqrt{a} + \sqrt{b} \neq \sqrt{a+b} \quad \sqrt{4} + \sqrt{9} \rightarrow \sqrt{13}$$
$$\sqrt{4} + \sqrt{9} \rightarrow 2 + 3 \rightarrow 5 \neq \sqrt{13}$$