MATH 2A/5A Prep: Exponents and Radicals

Facts to Know:

Suppose a, b, c are positive numbers, m, n are positive integers, then

- $a^{b+c} = a^b \cdot a^c$

- $a^{bc} = (a^b)^c$

- $(a+b)^n \neq a^n + b^n$

- $\sqrt{a+b} \neq \sqrt{a} + \sqrt{b}$

- $\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$

- $a^{1/n} = \sqrt[n]{a}$

- $a^{-1} = \dfrac{1}{a}$

- $a^{-\frac{m}{n}} = \dfrac{1}{\sqrt[n]{a^m}}$

Examples:

1. Suppose $x > 0$. Simplify the expression $\left[(x^2-1)^2 + (2x^2-1)\right]^{-\frac{3}{4}}$.