Yuliya Gorlina **Math 110 Section 53**

Formulas you need to know

The following are some of the fundamental formulas of algebra:

$|-a| = |a|$

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

$a^m a^n = a^{m+n}$

$\dfrac{a^m}{a^n} = a^{m-n}, a \neq 0$

$(a^m)^n = a^{mn}$

$(ab)^n = a^n b^n$

$\left(\dfrac{a}{b}\right)^n = \dfrac{a^n}{b^n}, b \neq 0$

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

$a^{m/n} = (\sqrt[n]{a})^m = \sqrt[n]{a^m}$

$\sqrt[n]{ab} = \sqrt[n]{a}\sqrt[n]{b}$

$\sqrt[n]{\dfrac{a}{b}} = \dfrac{\sqrt[n]{a}}{\sqrt[n]{b}}, b \neq 0$

$u^2 = k$ is equivalent to $u = \pm\sqrt{k}$

The solutions to $ax^2 + bx + c = 0$ are $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

In addition, the following are not equalities:

$$\begin{aligned} (a+b)^2 &\neq a^2 + b^2 \\ \sqrt{a+b} &\neq \sqrt{a} + \sqrt{b} \\ \frac{x+a}{x+b} &\neq \frac{a}{b} \\ |a| &\neq a \\ |-a| &\neq a \end{aligned}$$