# Formulas to Remember

$(a \pm b)^2 = a^2 + b^2 \pm 2ab$

$(a+b)(a-b) = a^2 - b^2$

$a^4 - b^4 = (a^2+b^2)(a+b)(a-b)$

Difference of squares

a and b take turns on the square

*A formula full of 3-s...*

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

$$a^3 \pm b^3 = (a \pm b)(a^2 \mp ab + b^2)$$

"sum/difference of cubes"

## Exponent Laws

$$a^{-n} = \frac{1}{a^n},\ a \neq 0$$

$$a^{\frac{1}{n}} = \sqrt[n]{a},\quad n > 0$$

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

$$a^m \div a^n = a^{m-n}$$

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

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

$$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m},\quad b \neq 0$$