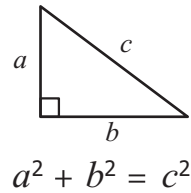
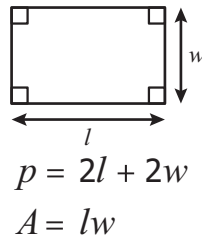
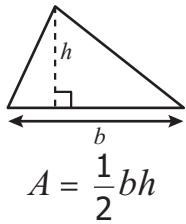


# Algebra 2 Formula Sheet

## 2023 Mathematics Standards of Learning

### Geometric Formulas:



### Quadratic Formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}, \text{ where } ax^2 + bx + c = 0 \text{ and } a \neq 0$$

### Statistics Formulas:

Given:

$x$  represents an element of the data set,

$x_i$  represents the  $i^{\text{th}}$  element of the data set,

$n$  represents the number of elements in the data set,

$\mu$  represents the mean of the data set,

$\sigma$  represents the standard deviation of the data set, and

$\sigma^2$  represents the variance of the data set

**z-score:**  $z = \frac{x - \mu}{\sigma}$

**standard deviation:**  $\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \mu)^2}{n}}$

**variance:**  $\sigma^2 = \frac{\sum_{i=1}^n (x_i - \mu)^2}{n}$

### Permutations and Combinations Formulas:

If  $n$  and  $r$  are positive integers and  $n \geq r$  ( $n$  objects taken  $r$  at a time),

$${}^n P_r = \frac{n!}{(n-r)!}$$

$${}^n C_r = \frac{n!}{r!(n-r)!}$$