

# Analytic Geometry Formula Sheet

Below are the formulas you may find useful as you work the problems. However, some of the formulas may not be used. You may refer to this page as you take the test.

## Quadratic Formulas

### Quadratic Equations

Standard Form:  $y = ax^2 + bx + c$

Vertex Form:  $y = a(x - h)^2 + k$

### Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

### Average Rate of Change

The change in the  $y$ -value divided by the change in the  $x$ -value for two distinct points on a graph.

## Geometry Formulas

### Pythagorean Theorem

$$a^2 + b^2 = c^2$$

### Trigonometric Relationships

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}; \quad \cos \theta = \frac{\text{adj}}{\text{hyp}}; \quad \tan \theta = \frac{\text{opp}}{\text{adj}}$$

### Equation of a Circle

$$(x - h)^2 + (y - k)^2 = r^2$$

### Circumference of a Circle

$$C = \pi d \quad \text{or} \quad C = 2\pi r$$

$$\pi \approx 3.14$$

### Arc Length of a Circle

$$\text{Arc Length} = \frac{2\pi r\theta}{360}$$

### Area of a Circle

$$A = \pi r^2$$

## Area of a Sector of a Circle

$$\text{Area of Sector} = \frac{\pi r^2 \theta}{360}$$

## Volume

Cylinder  $V = \pi r^2 h$

Pyramid  $V = \frac{1}{3} Bh$

Cone  $V = \frac{1}{3} \pi r^2 h$

Sphere  $V = \frac{4}{3} \pi r^3$

## Statistics Formulas

### Conditional Probability

$$P(A/B) = \frac{P(A \text{ and } B)}{P(B)}$$

### Multiplication Rule for Independent Events

$$P(A \text{ and } B) = P(A) \cdot P(B)$$

### Addition Rule

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$