

**Applied Mathematics 30 Formula Sheet**

The following information may be useful in writing this examination.

**Cost and Design****Perimeter**

$$\text{Circle } C = 2\pi r$$

**Area**

$$\text{Circle } A = \pi r^2$$

$$\text{Triangle } A = \frac{b \times h}{2}$$

$$\text{Parallelogram } A = b \times h$$

$$\text{Trapezoid } A = h \left( \frac{b_1 + b_2}{2} \right)$$

**Surface Area**

$$\text{Sphere } SA = 4\pi r^2$$

$$\text{Cylinder } SA = 2\pi r^2 + 2\pi rh$$

$$\text{Cone } SA = \pi r^2 + \pi rs$$

**Volume**

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

$$\text{Cylinder } V = \pi r^2 h$$

$$\text{Prism } V = B \cdot h, \text{ where } B \text{ is the area of the base}$$

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

$$\text{Pyramid } V = \frac{B \cdot h}{3}, \text{ where } B \text{ is the area of the base}$$

**Graphing Calculator Window Format**

$$X: [x_{\min}, x_{\max}, x_{\text{scl}}]$$

$$Y: [y_{\min}, y_{\max}, y_{\text{scl}}]$$

**Trigonometry and Vectors**

In degree mode:

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$a^2 = b^2 + c^2 - 2bc \cdot \cos A$$

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

**Statistics and Probability**

$$\mu = np$$

$$\sigma = \sqrt{np(1-p)}$$

$$z = \frac{x - \mu}{\sigma}$$

$$95\% \text{ C.I.: } \mu \pm 1.96(\sigma)$$

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

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

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

**Regression Models**

In radian mode:

$$y = a \cdot \sin(bx + c) + d$$

$$\text{period} = \frac{2\pi}{b}$$

$$y = ax^2 + bx + c$$

$$y = ax + b$$

$$y = a \cdot b^x$$