

Pre-Calculus Mathematics 11 Formula Sheet

Arithmetic Sequences and Series

$$t_n = t_1 + (n - 1)d \quad \text{or} \quad t_n = a + (n - 1)d$$

$$S_n = \frac{n}{2}[2t_1 + (n - 1)d] \quad \text{or} \quad S_n = \frac{n}{2}[2a + (n - 1)d]$$

$$S_n = \frac{n}{2}(t_1 + t_n) \quad \text{or} \quad S_n = \frac{n}{2}(a + t_n)$$

Geometric Sequences and Series

$$t_n = t_1 r^{n-1} \quad \text{or} \quad t_n = ar^{n-1}$$

$$S_n = \frac{t_1(r^n - 1)}{r - 1}, \quad r \neq 1 \quad \text{or} \quad S_n = \frac{a(r^n - 1)}{r - 1}, \quad r \neq 1$$

$$S_n = \frac{rt_n - t_1}{r - 1}, \quad r \neq 1 \quad \text{or} \quad S_n = \frac{rt_n - a}{r - 1}, \quad r \neq 1$$

$$s = \frac{t_1}{1 - r}, \quad -1 < r < 1 \quad \text{or} \quad s = \frac{a}{1 - r}, \quad -1 < r < 1$$

Trigonometry

$$\tan x = \frac{\sin x}{\cos x} \quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

Linear Relations

$$y = mx + b \quad y - y_1 = m(x - x_1) \quad Ax + By + C = 0$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Quadratic Functions and Equations

$$y = ax^2 + bx + c \quad y = a(x - p)^2 + q \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Graphing Calculator

$$x: [x_{\min}, x_{\max}, x_{\text{scl}}] \quad y: [y_{\min}, y_{\max}, y_{\text{scl}}]$$