C11 - 0.0 - Formula Sheet

Sequences and Series	Arithmetic	Geometric
	$t_n = t_1 + (n-1)d$	$t_n = t_1 r^{n-1}$
	$s_n = \dfrac{n}{2}(t_1 + t_n)$	$S_n = \dfrac{t_1(1 - r^n)}{1 - r}$
	$s_n = \dfrac{n}{2}(2t_1 + (n-1)d)$	$S_n = \dfrac{t_1 - rt_n}{1 - r}$ $\qquad S_\infty = \dfrac{t_1}{1 - r}$

Trigonometry

$$\sin\theta = \frac{O}{H} \qquad \cos\theta = \frac{A}{H} \qquad \tan\theta = \frac{O}{A} \qquad \theta = \sin^{-1}\left(+\frac{O}{H}\right)$$

$$\sin\theta = y \qquad \cos\theta = x \qquad \tan\theta = \frac{y}{x}$$

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} \qquad c^2 = a^2 + b^2 - 2ab\cos C$$

Quadratics

$$y = a(x - p)^2 + q \qquad y = ax^2 + bx + c \qquad y = a(x - z)(x - r)$$

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

Radicals

$$\sqrt{a \times a \times a} = a\sqrt{a} \qquad a\sqrt{b} + c\sqrt{b} = (a + c)\sqrt{b} \qquad a\sqrt{b} \times c\sqrt{d} = ac\sqrt{bd}$$

$$\begin{array}{l} \sqrt{x - 2} = 4 \\ x - 2 = 16 \end{array} \qquad x - 2 \geq 0 \qquad \frac{a\sqrt{b}}{c\sqrt{d}} = \frac{a}{c}\sqrt{\frac{b}{d}}$$

Rationals

$$\frac{1}{a} + \frac{1}{b} = \frac{a + b}{ab} \qquad \frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd} \qquad \frac{1}{a} + \frac{1}{b} = \frac{1}{c} \qquad a, b, c, d \neq 0$$
$$bc + ac = ab$$

Absolute Values	$y = |x - 3|$	Reciprocals	$y = \dfrac{1}{x - 2}$

Inequalities	$y \geq x - 2$	Systems	$y_1 = y_2$ $\qquad$ $LHS = RHS$
			$y_3 = y_1 \pm y_2 = 0$ $\qquad$ $\begin{array}{l} y_1 = LHS \\ y_2 = RHS \end{array}$