INFORMATION SHEET

$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $\quad x = \dfrac{b}{2a}$ $\quad y = \dfrac{4ac - b^2}{4a}$

$a^x = b \Leftrightarrow x = \log_a b$, $\quad a > 0$, $a \neq 1$ and $b > 0$

$A = P(1 + ni)$ $\quad A = P(1 - ni)$ $\quad A = P(1 + i)^n$ $\quad A = P(1 - i)^n$

$$i_{eff} = \left(1 + \frac{i^m}{m}\right)^m - 1$$

$$f^{/}(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$

$\int \frac{1}{x} dx = \ln(x) + C, \quad x > 0$ $\qquad \int x^n dx = \frac{x^{n+1}}{n+1} + C \quad , \quad n \neq -1$

$\int a^x dx = \frac{a^x}{\ln a} + C \quad , \quad a > 0$

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ $\qquad M\left(\frac{x_1 + x_2}{2} \; ; \; \frac{y_1 + y_2}{2}\right)$

$y = mx + c$ $\qquad y - y_1 = m(x - x_1)$

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $\qquad m = \tan\theta$

$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

In ΔABC: $\quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

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

area $\Delta ABC = \frac{1}{2}ab.\sin C$

$\sin^2\theta + \cos^2\theta = 1$ $\qquad 1 + \tan^2\theta = \sec^2\theta$ $\qquad \cot^2\theta + 1 = \text{cosec}^2\theta$

$\pi rad = 180°$

Angular velocity $= \omega = 2\pi n = 360° n$ where n = rotation frequency

Circumferencial velocity $= v = \pi Dn$ where D = diameter and n = rotation frequency

$s = r\theta$ where r = radius and θ = central angle in radians

Area of a sector $= \frac{rs}{2} = \frac{r^2\theta}{2}$ where r = radius, s = arc length and
θ = central angle in radians

$4h^2 - 4dh + x^2 = 0$ where h = height of segment,
d = diameter of circle and
x = length of chord

$A_T = a\left(\frac{o_1 + o_n}{2} + o_2 + o_3 + o_4 + \ldots + o_{n-1}\right)$ where a = equal parts,
o_i = i^{th} ordinate and
n = number of ordinates

OR

$A_T = a\left(m_1 + m_2 + m_3 + \ldots + m_n\right)$ where a = equal parts, $m_1 = \frac{o_1 + o_2}{2}$
and n = number of ordinates