INFORMATION SHEET

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

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

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

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

$f^{/}(x) = \lim\limits_{h \to 0} \dfrac{f(x+h) - f(x)}{h}$

$\int \dfrac{1}{x} dx = \ln x + C, x > 0$ $\qquad \int \dfrac{k}{x} dx = k \cdot \ln x + C, x > 0$

$\int x^n dx = \dfrac{x^{n+1}}{n+1} + C, x \neq -1$ $\qquad \int kx^n dx = k \cdot \dfrac{x^{n+1}}{\text{n}+1} + C, n \neq -1$

$\int a^x dx = \dfrac{a^x}{\ln a} + C, a > 0$ $\qquad \int ka^{nx} dx = k \cdot \dfrac{a^{nx}}{n \ln a} + C, a > 0$

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

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

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

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

In ΔABC: $\qquad \dfrac{a}{\sin \text{A}} = \dfrac{b}{\sin \text{B}} = \dfrac{c}{\sin \text{C}}$

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

area of $\Delta \text{ABC} = \dfrac{1}{2} ab.\sin \text{C}$

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

$\pi rad = 180°$

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

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

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

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

$\text{Area of a sector} = \dfrac{rs}{2}$ where r = radius and s = arc length

$\text{Area of a sector} = \dfrac{r^2\theta}{2}$ where r = radius 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

$A_T = a\left(\dfrac{o_1 + o_n}{2} + o_2 + o_3 + o_4 + \ldots + o_{n-1}\right)$ where a = number of equal parts,

o_n = n^{th} ordinate and
n = number of ordinates

OR

$A_T = a(m_1 + m_2 + m_3 + \ldots + m_n)$ where a = number of equal parts, $m_1 = \dfrac{o_1 + o_2}{2}$

and n = number of ordinates