# INFORMATION SHEET

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

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

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

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

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

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

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

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

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

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

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

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

In $\Delta ABC$:

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

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

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

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

 

$\pi rad = 180°$

Angular velocity $= \omega = 2\pi n$ 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 $\theta$ = central angle in radians

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

$$\text{Area of a sector} = \frac{r^2\theta}{2}$$ where $r$ = radius and $\theta$ = 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 $a$ = size 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 $a$ = size of equal parts, $m_1 = \frac{o_1 + o_2}{2}$

and $n$ = number of ordinates