Actual Formula	Test #1	Test #2	Formula
$(a+b)(a^2-ab+b^2)$			$a^3+b^3=$
$(a-b)(a^2+ab+b^2)$			$a^3-b^3=$
$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$			Quadratic Formula
$f(x)\ =\ f(-x)$			Test for even functions
$f(-x)\ =\ -f(x)$			Test for odd functions
$(x-h)^2+(y-k)^2=r^2$			General equation of a circle
$y=\sqrt{r^2-x^2}$			Equation of a semi-circle
0			$\lim_{x\ ®\ ¥}\frac{1}{x}=$
$\frac{1}{\sqrt{2}}$			$\sin\left(\frac{\pi}{4}\right)=$
$\frac{1}{\sqrt{2}}$			$\cos\left(\frac{\pi}{4}\right)=$
1			$\tan\left(\frac{\pi}{4}\right)=$
$\frac{\sqrt{3}}{2}$			$\sin\left(\frac{\pi}{3}\right)=$
$\frac{1}{2}$			$\sin\left(\frac{\pi}{6}\right)=$
$\frac{1}{2}$			$\cos\left(\frac{\pi}{3}\right)=$
$\frac{\sqrt{3}}{2}$			$\cos\left(\frac{\pi}{6}\right)=$

$\sqrt{3}$			$\tan\left(\frac{\pi}{3}\right) =$
$\frac{1}{\sqrt{3}}$			$\tan\left(\frac{\pi}{6}\right) =$
$\frac{\sin\theta}{\cos\theta}$			$\tan\theta =$
$\frac{\cos\theta}{\sin\theta}$			$\cot\theta =$
1			$\sin^2\theta + \cos^2\theta =$
$1 + \cot^2\theta = \operatorname{cosec}^2\theta$			Other trig identity
$\tan^2\theta + 1 = \sec^2\theta$			Other trig identity
$\frac{\sin A}{a} = \frac{\sin B}{b}$			Sine rule
$a^2 = b^2 + c^2 - 2bc\cos A$			Cosine rule for side
$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$			Cosine rule for an angle
$A = \frac{1}{2} ab \sin C$			Area of a triangle using trig
			Graphs
$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$			Distance formula
$P = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$			Midpoint Formula
$m = \frac{y_2 - y_1}{x_2 - x_1}$			Gradient Formula
$m = \tan\theta$			Gradient using trig

$y - y_1 = m(x - x_1)$			Point-gradient formula
$\frac{y - y_1}{x - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$			Two-point formula
$m_1 = m_2$			Parallel lines proof
$m_1 m_2 = -1$			Perpendicular lines proof
$d = \frac{\lvert ax_1 + by_1 + c \rvert}{\sqrt{a^2 + b^2}}$			Perpendicular distance formula
$\tan\theta = \left\lvert \frac{m_1 - m_2}{1 + m_1 m_2} \right\rvert$			Angle between two lines
$x = \frac{mx_2 + nx_1}{m + n}$ $y = \frac{my_2 + ny_1}{m + n}$			Dividing interval in ratio m:n
$\frac{dy}{dx} = \lim_{h \to 0} \frac{f(x + h) - f(x)}{h}$			First principle differentiation
$n x^{n-1}$			$\frac{d}{dx} x^n$
$f'(x) n [f(x)]^{n-1}$			$\frac{d}{dx}[f(x)]^n =$
$vu' + uv'$			$\frac{d}{dx} uv$
$\frac{vu' - uv'}{v^2}$			$\frac{d}{dx} \frac{u}{v}$
$x = -\frac{b}{2a}$			Axis of symmetry in quadratic
$\Delta = b^2 - 4ac$			The discriminant
$-\frac{b}{a}$			Sum of roots

$\frac{c}{a}$			Sum of roots two at a time
$-\frac{d}{a}$			Sum of roots three at a time
$\frac{e}{a}$			Sum of roots four at a time
$x^2 = 4ay$ $(0, a)$ $(0, 0)$			Equation of basic parabola. Focus Vertex
$(x - h^2) = 4a(y - k)$ $(\mathbf{h}, \mathbf{k})$ $(\mathbf{h}, \mathbf{k} + \mathbf{a})$			General equation of parabola. Focus Vertex
$x = 2at$ $y = at^2$			Parametric form of: $x^2 = 4ay$
$T_n = a + (n - 1)d$			Term of an arithmetic series
$S_n = \frac{n}{2}(a + l)$ $S_n = \frac{n}{2}[2a + (n - 1)d]$			Sum of an arithmetic series
$S = (n - 2) \times 180^\circ$			Sum of interior angles of an n-sided polygon
$A = lb$			Area of rectangle
$A = x^2$			Area of a square
$A = \frac{1}{2}bh$			Area of a triangle
$A = bh$			Area of a parallelogram

$\frac{1}{2}xy$			Area of rhombus
$A = \frac{1}{2}h(a+b)$			Area of trapezium
$A = \pi r^2$			Area of circle
$S = 2(lb + bh + lh)$			Surface area of a rectangular prism
$V = lbh$			Volume of a rectangular prism
$S = 6x^2$			Surface area of a cube
$V = x^3$			Volume of a cube
$S = 2\pi r^2 + 2\pi r h$			Surface area of a cylinder
$V = \pi r^2 h$			Volume of a cylinder
$S = 4\pi r^2$			Surface area of a sphere
$V = \frac{4}{3}\pi r^3$			Volume of a sphere
$S = \pi r^2 + \pi rl$			Surface area of a cone
$V = \frac{1}{3}\pi r^2 h$			Volume of a cone
$\frac{x^{n+1}}{n+1} + c$			$\int x^n \, dx$
$\frac{h}{2}[(y_0 + y_n) + 2(y_1 + y_2 + ... + y_{n-1})]$ where $h = \frac{b-a}{n}$			Trapezoidal rule

$\frac{h}{3}[(y_0 + y_n) + 4(y_1 + y_3) + 2(y_2 + y_4)]$ where $h = \frac{b-a}{n}$			Simpson's Rule
$\frac{(ax+b)^{n+1}}{a(n+1)} + c$			$\int (ax+b)^n \, dx$
$V = \pi \int y^2 \, dx$			Volume about the x-axis
$V = \pi \int x^2 \, dy$			Volume about the y-axis
e^x			$\frac{d}{dx} e^x$
$f'(x) \, e^{f(x)}$			$\frac{d}{dx} e^{f(x)}$
$e^x + c$			$\int e^x \, dx$
$\frac{1}{a} e^{ax+b} + c$			$\int e^{ax+b} \, dx$
$\log_a x + \log_a y$			$\log_a (xy)$
$\log_a x - \log_a y$			$\log_a \left(\frac{x}{y}\right)$
$n \log_a x$			$\log_a x^n$
$\log_a x = \frac{\log_e x}{\log_e a}$			Change of base rule
$\frac{1}{x}$			$\frac{d}{dx} \log_e x$
$\frac{f'(x)}{f(x)}$			$\frac{d}{dx} \log_e f(x)$
$\log_e x + c$			$\int \frac{1}{x} \, dx$

$\log_e f(x) + c$			$\int \frac{f'(x)}{f(x)}\, dx$
180°			π *radians* =
$C = 2\pi r$			Circumference of a circle
$l = r\theta$			Length of an arc
$A = \frac{1}{2} r^2 \theta$			Area of a sector
$A = \frac{1}{2} r^2 (\theta - \sin\theta)$			Area of a minor segment
$\sin x$ » x $\tan x$ » x $\cos x$ » 1			Small Angles
$f'(x) \cos [f(x)]$			$\frac{d}{dx} \sin [f(x)]$
$-f'(x) \sin [f(x)]$			$\frac{d}{dx} \cos [f(x)]$
$f'(x) \sec^2 f(x)$			$\frac{d}{dx} \tan f(x)$
$\frac{1}{a} \sin(ax + b) + c$			$\int \cos(ax + b)\, dx$
$-\frac{1}{a} \cos(ax + b) + c$			$\int \sin(ax + b)\, dx$
$\frac{1}{a} \tan(ax + b) + c$			$\int \sec^2(ax + b)\, dx$
$\frac{1}{2} x + \frac{1}{4a} \sin 2ax + c$			$\int \cos^2 ax\, dx$
$\frac{1}{2} x - \frac{1}{4a} \sin 2ax + c$			$\int \sin^2 ax\, dx$

$r = \frac{T_2}{T_1}$			Common ratio in geometric series
$T_n = ar^{n-1}$			Term of a geometric series
$S_n = \frac{a(r^n - 1)}{r - 1} \; for \; \lvert r \rvert > 1$ $S_n = \frac{a(1 - r^n)}{1 - r} \; for \; \lvert r \rvert < 1$			Sum of a geometric series
$S_\infty = \frac{a}{1 - r}$			Sum to infinity of a geometric series
$A = P\left(1 + \frac{r}{100}\right)^n$			Compound interest formula
$If \; f\left(\frac{a + b}{2}\right) = 0$			Halving the interval method
$a_1 = a - \frac{f(a)}{f'(a)}$			Newton's method of approximation
$\frac{n!}{(n - r)!}$			$^nP_r =$
$\frac{n!}{s!t!\ldots}$			Arrangements where some are alike
$(n - 1)!$			Arrangements in a circle