

MATHEMATICS

ALGEBRA	CALCULUS	GEOMETRY
Quadratic eq. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ Discriminant $D > 0$ $D = 0$ D $D < 0$ $D = 0$ real root $D < 0$ $D = \text{comp. roots}$ $D < 0$ $2 = \text{comp. roots}$	Derivative $\frac{d}{dx} (x^n) = nx^{n-1}$ $\frac{d}{dx} (u \pm v) = u' \pm v'$ $\frac{d}{dx} (uv) = \frac{u'v + uv'}{v^2}$ $\frac{d}{dx} \int f(g(x)) = f^2 g(x) g'(x)$	Distance $d = \sqrt{(x_2 - x_1)^2 + \frac{y_2 - y_1}{x_2 - x_1}}$ Slope $m = \frac{y_2 - y_1}{x_2 - x_1}$ Area of circle $A = \pi r^2$ $C = 2\pi r$
How to factor $x^2 + (a+b)x + ab = (a+b)(x+a)$ Completing the square $a^2 - b^2 = (a+b)(a-b)$	Integrals $\int \frac{x^n}{n+1} = \frac{x^{n+1}}{n+1}$ $\int \frac{x^n}{x} dx = \frac{1}{x} = \ln x + C$ Tangent & Normal Lines $y = f(a) + f'(a)(x-a)$ $y = f(a) - \frac{1}{f'(a)}(x-a)$	Pythagorean Theorem $a^2 + b^2 = c^2$ Trigonometry $\sin \theta = \frac{a}{c}$ Standard am. $\cos \theta = \frac{b}{c}$ $\sin^2 \theta + \cos^2 \theta = 1$ $\tan \theta = \frac{a}{b}$ $\tan \theta = \frac{\sin \theta}{\cos \theta}$
Tricks $a^2 - b^2 = (a+b)(a-b)$	Tangent & Normal $y = f(a) + x$ Normal Line $y = f(a)$	Unit Circle $\sin^2 \theta + \cos^2 \theta = 1$ $\sin^2 \theta = a \cos^2 \theta$ $y = \cos x$ $y = e^x$
Difference of two squares. $a^2 - b^2 = (a+b)(a-b)$	Standard identity $\sin^2 \theta + \cos^2 \theta = 1$ $\tan \theta = \frac{\sin \theta}{\cos \theta}$	Standard identities $\sin^2 \theta + \cos^2 \theta = 1$ $\tan \theta =$
Tangent & Normal Li $y = f(a) + f'(a)(x-a)$ $y = f(a) - \frac{1}{f'(a)}(x-a)$	Tan-ting $\sin(90^\circ - \theta) = \cos \theta$ $\cos(90^\circ - \theta) = \sin \theta$	Graphs $y = x^2$ $y = e^x$ $y = e^{-x}$