

$$\bullet (a \pm b)^2 = a^2 \pm 2ab + b^2$$

$$\bullet a^2 - b^2 = (a-b)(a+b)$$

Exponential Rules (Note these rules apply when $x=e$)

$$\bullet x^{a+b} = x^a x^b$$

$$\bullet x^{-m} = \frac{1}{x^m}$$

$$\bullet x^0 = 1$$

$$\bullet x^{a-b} = \frac{x^a}{x^b}$$

$$\bullet x^{p/q} = \sqrt[q]{x^p}$$

Logarithmic Properties

$$\bullet \ln e^x = x = e^{\ln x}$$

$$\bullet \ln(ab) = \ln(a) + \ln(b)$$

$$\bullet \ln(a^x) = x \ln a$$

$$\bullet \ln\left(\frac{a}{b}\right) = \ln(a) - \ln(b)$$

Trig Identities

$$\tan x = \frac{\sin x}{\cos x}$$

$$\cot x = \frac{\cos x}{\sin x}$$

$$\csc x = \frac{1}{\sin x}$$

$$\sec x = \frac{1}{\cos x}$$

	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$
sin	0 = 0/2	1/2	$\sqrt{2}/2$	$\sqrt{3}/2$	$\sqrt{4}/2 = 1$
cos	1 = $\sqrt{4}/2$	$\sqrt{3}/2$	$\sqrt{2}/2$	1/2	0/2 = 0

Remember $\sin^2 x = [\sin x]^2 \neq \sin(x^2)$

Trick to multiplying terms

$$h(x) = (2x+1)(3x^2+2x+1) = 6x^3 + 4x^2 + 3x^2 + 2x + 2x + 1 = 6x^3 + 7x^2 + 4x + 1$$

	$3x^2$	$2x$	1
$2x$	$6x^3$	$4x^2$	$2x$
1	$3x^2$	$2x$	1