

## Formulas on the Final Exam Formula Sheet:

Series & Sequences (9)		Trigonometric Identities (5)	
Arithmetic	Geometric	Sum & Difference	Double Angle
$a_n = a_p + d(n - p)$	$a_n = a_1 (r)^{n-1}$	$\sin(x \pm y) = \sin(x)\cos(y) \pm \sin(y)\cos(x)$	$\sin(2x) = 2\sin(x)\cos(x)$
$\sum_{i=1}^n a_i = \frac{n}{2}(a_1 + a_n)$	$\sum_{i=1}^n a_i = a_1 \left( \frac{1-r^n}{1-r} \right)$	$\cos(x \pm y) = \cos(x)\cos(y) \mp \sin(x)\sin(y)$	$\cos(2x) = 2\cos^2(x) - 1$ $= 1 - 2\sin^2(x)$ $= \cos^2(x) - \sin^2(x)$
	$\sum_{i=1}^{\infty} a_i = a_1 \left( \frac{1}{1-r} \right)$	$\tan(x \pm y) = \frac{\tan(x) \pm \tan(y)}{1 \mp \tan(x)\tan(y)}$	$\tan(2x) = \frac{2\tan(x)}{1 - \tan^2(x)}$

Trigonometric Laws (6)
$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$
$c^2 = a^2 + b^2 - 2ab\cos C$

DeMoivre's Theorem (6)
$z^n = r^n (\cos n\theta + i \sin n\theta)$
$\sqrt[n]{z} = \sqrt[n]{r} \left( \cos \frac{\theta}{n} + i \sin \frac{\theta}{n} \right)$

Triangle Area (6)
$K = \sqrt{s(s-a)(s-b)(s-c)}$
$K = \frac{1}{2}ab\sin C$

Compound Interest (3)
$A = P \left( 1 + \frac{r}{n} \right)^{nt}$
$A = Pe^{rt}$

Conic Sections (10)		
Circle	Ellipse	Hyperbola
$(x-h)^2 + (y-k)^2 = r^2$	$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$	$\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$
<b>Parabola</b>		
$(x-h)^2 = 4p(y-k)$	$\frac{(x-h)^2}{b^2} + \frac{(y-k)^2}{a^2} = 1$	$\frac{(y-k)^2}{a^2} - \frac{(x-h)^2}{b^2} = 1$
$(y-k)^2 = 4p(x-h)$		$(y-k) = \pm \frac{b}{a}(x-h)$
		$(y-k) = \pm \frac{a}{b}(x-h)$

## Formulas & Stuff NOT on the Final Exam Formula Sheet

<b>Logarithms (3)</b>
Log Properties:
Change of Base:

<b>Trigonometry (4)</b>
Convert to Radians:
Convert to Degrees:
Graphs (amplitude & period):
Pythagorean Identities:

<b>Polynomials (2)</b>	
Horizontal Asymptotes:	Descarte's Rule of Signs:
Vertical Asyptotes:	Rational Zero Test (RZT):
Sum/Diff of Cubes Factoring:	

<b>Polar Coordinates (10)</b>
Convert to Polar:
Convert to Rectangular:

<b>Vectors (6)</b>
Component Form:
Linear Combination Form:
Trigonometric Form:
Unit Vectors: