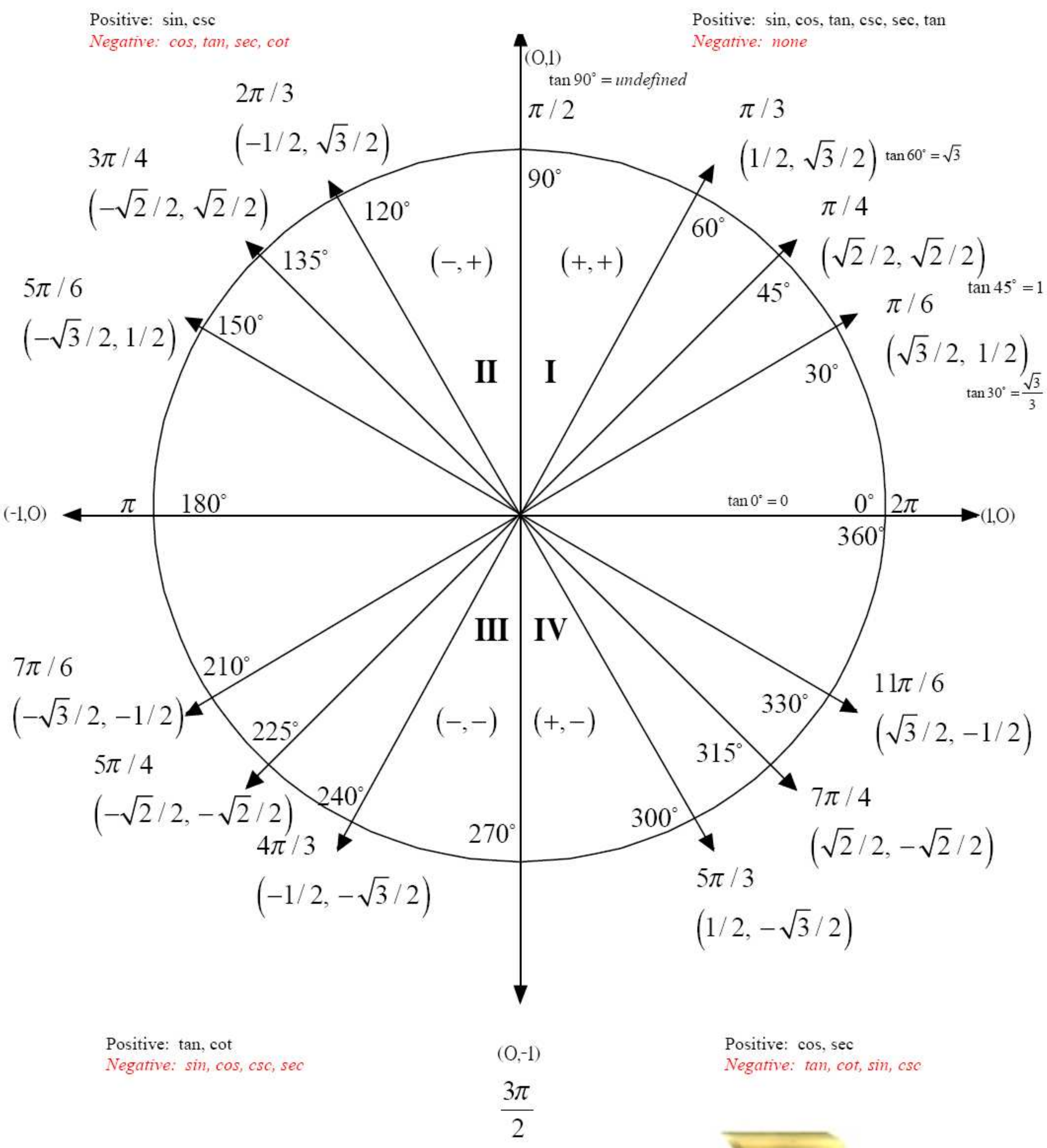
Formulas

Chapter 5			
Law of Sines	**Law of Cosines**	**Area of Triangle**	**Hero's Formula**
$\frac{a}{\sin A}=\frac{b}{\sin B}=\frac{c}{\sin C}$	$a^2=b^2+c^2-2bc\cos A$ $b^2=a^2+c^2-2ac\cos B$ $c^2=a^2+b^2-2ab\cos C$	$k=\frac{1}{2}a^2\frac{\sin B\sin C}{\sin A}$ $k=\frac{1}{2}bc\sin A$	$k=\sqrt{s(s-a)(s-b)(s-c)}$
Chapter 6			
$s=r\theta$	$A=\frac{1}{2}r^2\theta$	$\omega=\frac{\theta}{t}$	$v=r\frac{\theta}{t}$
Chapter 7			
Pythagorean Identities	Sum and Difference Identities	Double Angle Identities	Half-Angle Identities
$\sin^2\theta+\cos^2\theta=1$	$\sin(\alpha\pm\beta)=\sin\alpha\cos\beta\pm\cos\alpha\sin\beta$	$\sin 2\theta=2\sin\theta\cos\theta$	$\sin\frac{\alpha}{2}=\pm\sqrt{\frac{1-\cos\alpha}{2}}$
$\tan^2\theta+1=\sec^2\theta$	$\cos(\alpha\pm\beta)=\cos\alpha\cos\beta\mp\sin\alpha\sin\beta$	$\cos 2\theta=\cos^2\theta-\sin^2\theta$	$\cos\frac{\alpha}{2}=\pm\sqrt{\frac{1+\cos\alpha}{2}}$
$1+\cot^2\theta=\csc^2\theta$	$\tan(\alpha\pm\beta)=\frac{\tan\alpha\pm\tan\beta}{1\mp\tan\alpha\tan\beta}$	$\tan 2\theta=\frac{2\tan\theta}{1-\tan^2\theta}$	$\tan\frac{\alpha}{2}=\pm\sqrt{\frac{1-\cos\alpha}{1+\cos\alpha}}$
Chapter 8			
Initial Velocities		Parametric Equations	
$\lvert\vec{v_x}\rvert=\lvert\vec{v}\rvert\cos\theta$ $\quad$ $\lvert\vec{v_y}\rvert=\lvert\vec{v}\rvert\sin\theta$		$x=t\lvert\vec{v}\rvert\cos\theta$ $\quad$ $y=t\lvert\vec{v}\rvert\sin\theta-\frac{1}{2}gt^2$	
Chapter 9			
Polar Distance Formula	**Polar Form of a Liner Equation**		**Absolute Value of a Complex Number**
$P_1P_2=\sqrt{r_1^2+r_2^2-2r_1r_2\cos(\theta_2-\theta_1)}$	$p=\frac{-C}{\sqrt{A^2+B^2}},\phi=Arc\tan\left(\frac{B}{A}\right)$	$p=r\cos(\theta-\phi)$	$\lvert z\rvert=\sqrt{a^2+b^2}$
(θ, r) → (x, y)	(x, y) → (θ, r)	**De Moivre's Theorem**	**Polar Form of a Complex Number**
$x=r\cos\theta$ $y=r\sin\theta$	$r=\sqrt{x^2+y^2}$ $\theta=Arc\tan\left(\frac{y}{x}\right)$	$[r(\cos\theta+i\sin\theta)]^n=r^n(\cos n\theta+i\sin n\theta)$	$r(\cos\theta+i\sin\theta)$

Angles and Radians of a Unit Circle



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