Formulas and Identities from Trigonometry *(continued)*

Law of cosines (p. 889)	If $\triangle ABC$ has sides of length a, b, and c, then: $a^2 = b^2 + c^2 - 2bc\cos A$; $b^2 = a^2 + c^2 - 2ac\cos B$; $c^2 = a^2 + b^2 - 2ab\cos C$
Heron's area formula (p. 891)	The area of the triangle with sides of length a, b, and c is $\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$ where $s = \frac{1}{2}(a+b+c)$.
Reciprocal identities (p. 924)	$\csc\theta = \frac{1}{\sin\theta}$ $\sec\theta = \frac{1}{\cos\theta}$ $\cot\theta = \frac{1}{\tan\theta}$
Tangent and cotangent identities (p. 924)	$\tan\theta = \frac{\sin\theta}{\cos\theta}$ $\cot\theta = \frac{\cos\theta}{\sin\theta}$
Pythagorean identities (p. 924)	$\sin^2\theta + \cos^2\theta = 1$ $1 + \tan^2\theta = \sec^2\theta$ $1 + \cot^2\theta = \csc^2\theta$
Cofunction identities (p. 924)	$\sin\left(\frac{\pi}{2} - \theta\right) = \cos\theta$ $\cos\left(\frac{\pi}{2} - \theta\right) = \sin\theta$ $\tan\left(\frac{\pi}{2} - \theta\right) = \cot\theta$
Negative angle identities (p. 924)	$\sin(-\theta) = -\sin\theta$ $\cos(-\theta) = \cos\theta$ $\tan(-\theta) = -\tan\theta$
Sum formulas (p. 949)	$\sin(a+b) = \sin a\cos b + \cos a\sin b$; $\cos(a+b) = \cos a\cos b - \sin a\sin b$; $\tan(a+b) = \frac{\tan a + \tan b}{1 - \tan a\tan b}$
Difference formulas (p. 949)	$\sin(a-b) = \sin a\cos b - \cos a\sin b$; $\cos(a-b) = \cos a\cos b + \sin a\sin b$; $\tan(a-b) = \frac{\tan a - \tan b}{1 + \tan a\tan b}$
Double-angle formulas (p. 955)	$\cos 2a = \cos^2 a - \sin^2 a$; $\cos 2a = 2\cos^2 a - 1$; $\cos 2a = 1 - 2\sin^2 a$; $\sin 2a = 2\sin a\cos a$; $\tan 2a = \frac{2\tan a}{1 - \tan^2 a}$
Half-angle formulas (p. 955)	$\sin\frac{a}{2} = \pm\sqrt{\frac{1-\cos a}{2}}$; $\cos\frac{a}{2} = \pm\sqrt{\frac{1+\cos a}{2}}$; $\tan\frac{a}{2} = \frac{1-\cos a}{\sin a}$; $\tan\frac{a}{2} = \frac{\sin a}{1+\cos a}$. The signs of $\sin\frac{a}{2}$ and $\cos\frac{a}{2}$ depend on the quadrant in which $\frac{a}{2}$ lies.

TABLES