Midterm 1 Formula Sheet

Math 1B, Summer 2008

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Some, all, or none of the following may be helpful to you[1]:

Trig Stuff

Product Rules:	$\sin A \cos B = \frac{1}{2}(\sin(A-B) + \sin(A+B))$	
	$\sin A \sin B = \frac{1}{2}(\cos(A-B) - \cos(A+B))$	
	$\cos A \cos B = \frac{1}{2}(\cos(A-B) + \cos(A+B))$	
Double/Half Angle:	$\sin x \cos x = \frac{1}{2}\sin(2x)$	$\sin(2x) = 2\sin(x)\cos(x)$
	$\sin^2 x = \frac{1}{2}(1 - \cos(2x))$	$\cos(2x) = 1 - 2\sin^2(x)$
	$\cos^2 x = \frac{1}{2}(1 + \cos(2x))$	$\cos(2x) = 2\cos^2(x) - 1$
	$\tan(2x) = \frac{2\tan(x)}{1-\tan^2(x)}$	$\cos(2x) = \cos^2(x) - \sin^2(x)$
Obscure Integrals:	$\int \sec x = \ln(\sec x + \tan x) + C$	$\int \csc x = \ln(\csc x - \cot x) + C$

Approx Integration

- If $|f''(x)| \leq K$ for $a \leq x \leq b$, then $|E_T| \leq \frac{K(b-a)^3}{12n^2}$ and $|E_M| \leq \frac{K(b-a)^3}{24n^2}$
- If $|f^{(4)}(x)| \leq K$ for $a \leq x \leq b$, then $|E_S| \leq \frac{K(b-a)^5}{180n^n}$

[1] This is only a first draft. Depending on what I put on the actual midterm, I may add more.