Supplementary Midterm 2 Practice Problems

Note: There are practice problems on MathXL. These problems are meant to supplement the ones that are already online.

Graphing Problems: Graph the following functions

(1) $y = 2\sin\left(2x - \frac{\pi}{2}\right)$

(2) $y = -3\sin\left(\frac{1}{2}(x - \pi)\right) + 1$

(3) $y = \cos\left(\frac{\pi}{2}(x - 1)\right) - 2$

(4) $f(x) = -2\tan(2x + \pi)$

Proofs: Verify the following

(1) $1 + \sec^2 x \sin^2 x = \sec^2 x$

(2) $\tan^2 x = \sec^2 x - \sin^2 x - \cos^2 x$

(3) $\frac{\sin x}{1 - \cos x} + \frac{\sin x}{1 + \cos x} = 2\csc x$

(4) $\frac{\cot^2 x}{\csc x - 1} = \frac{1 + \sin x}{\sin x}$

(5) $\sin(a + b) + \sin(a - b) = 2\sin a \cos b$

(6) $\frac{1 - \tan\theta}{1 + \tan\theta} = \frac{1 - \sin 2\theta}{\cos 2\theta}$