Assignments for the Week of Sept. 26

- Read 6.1-6.3, 6.5
- 45 minutes of Khan Academy
- Textbook assignment due Friday, Sept. 21:
  6.1 #1-69 odd (proofs)
  6.3 #1-24 all; 30-36 all; 49-93 odd
- **memorize your identities!!!**

only 6.1 due Fri
6.3 due Test day

When to have Test #3?

9:00-Tues. 10/4?

66. $\sin 4x = 4\sin x\cos x - 8\cos x\sin^3 x$

$LHS = \sin 2(2x) = 2\sin 2x\cos 2x =$

$= 2(2\sin x\cos x)(1-2\sin^2 x) =$

$= 4\sin x\cos x(1-2\sin^2 x) =$

$= 4\sin x\cos x - 8\sin^3 x\cos x = RHS$ ✓

68. $\sin 3x + \sin x = 4\sin x - 4\sin^3 x$

$LHS = \sin(2x+x) + \sin x =$

$= \sin 2x \cos x + \cos 2x \sin x + \sin x =$

$= (2\sin x \cos x)\cos x + (\cos^2 x - \sin^2 x)\sin x + \sin x =$

$= 2\sin x \cos^2 x + \sin x \cos^2 x - \sin^3 x + \sin x =$

$= 3\sin x \cos^2 x - \sin^3 x + \sin x =$

$= 3\sin x (1 - \sin^2 x) - \sin^3 x + \sin x =$

$= 3\sin x - 3\sin^3 x - \sin^3 x + \sin x =$

$= 4\sin x - 4\sin^3 x = RHS$ ✓

72. $\cos^2 \frac{x}{2} = \frac{\sec x + 1}{2\sec x}$

$LHS = \left[\cos \frac{x}{2}\right]^2 = \left[\pm\sqrt{\frac{1+\cos x}{2}}\right]^2 = \frac{1+\cos x}{2} =$

$= \frac{1+\cos x}{2} \cdot \frac{\sec x}{\sec x} = \frac{\sec x + \cos x \sec x}{2\sec x} =$

$= \frac{\sec x + \cancel{\cos x} \cdot \frac{1}{\cancel{\cos x}}}{2\sec x} = \frac{\sec x + 1}{2\sec x} = RHS$ ✓

76. $\cos^2\frac{x}{2} - \sin^2\frac{x}{2} = \cos x$

LHS $= \cos 2\left(\frac{x}{2}\right) =$ RHS ✓

Good work!