

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?

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

$$\text{LHS} = \sin 2(2x) = 2 \sin 2x \cos 2x =$$

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

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

$$= 4 \sin x \cos x - 8 \sin^3 x \cos x = \text{RHS} \checkmark$$

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

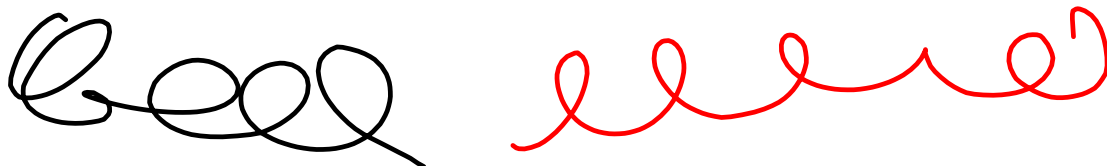
$$\begin{aligned} \text{LHS} &= \sin(2x+x) + \sin x = \\ &= \sin 2x \cos x + \cos 2x \sin x + \sin x = \\ &= (2 \sin x \cos x) \cos x + (\cos^2 x - \sin^2 x) \sin x + \sin x = \\ &= 2 \sin x \cos^2 x + \sin x \cos^2 x - \sin^3 x + \sin x = \\ &= 3 \sin x \cos^2 x - \sin^3 x + \sin x = \\ &= 3 \sin x (1 - \sin^2 x) - \sin^3 x + \sin x = \\ &= 3 \sin x - 3 \sin^3 x - \sin^3 x + \sin x = \\ &= 4 \sin x - 4 \sin^3 x = \text{RHS} \checkmark \end{aligned}$$

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

$$\begin{aligned} \text{LHS} &= \left[\cos \frac{x}{2} \right]^2 = \left[\pm \sqrt{\frac{1 + \cos x}{2}} \right]^2 = \frac{1 + \cos x}{2} = \\ &= \frac{1 + \cos x}{2} \cdot \frac{\sec x}{\sec x} = \frac{\sec x + \cos x \sec x}{2 \sec x} = \\ &= \frac{\sec x + \cancel{\cos x} \cdot \frac{1}{\cancel{\cos x}}}{2 \sec x} = \frac{\sec x + 1}{2 \sec x} = \text{RHS} \checkmark \end{aligned}$$

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

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

The image shows two sets of handwritten scribbles. The first set on the left is drawn in black ink and consists of several overlapping loops. The second set on the right is drawn in red ink and also consists of several overlapping loops, mirroring the style of the first set.