

2.49  
78

$$\frac{3}{5} = \sin\left(\frac{5\pi}{2} - x\right) = \sin\left(\frac{\pi}{2} - x\right) = \cos x = 1 - 2\sin^2 \frac{x}{2}$$

$$\begin{aligned} \sin \frac{x}{2} \sin \frac{5x}{2} &= \frac{1}{2} [\cos 2x - \cos 3x] = \frac{1}{2} [2\cos^2 x - 1 - 4\cos^3 x + 3\cos x] = \frac{1}{2} \left[ 2\left(\frac{3}{5}\right)^2 - 1 - 4\left(\frac{3}{5}\right)^3 + 3 \cdot \frac{3}{5} \right] \\ &= \frac{1}{2} \left[ \frac{90 - 125 - 108 + 225}{125} \right] = \frac{82}{2 \cdot 125} = \frac{41}{125} \end{aligned}$$