PROOF OF FORMULA 3.631.4

$$\int_0^\pi \sin^n x \, \sin 2mx \, dx = 0$$

Observe that

$$\int_0^\pi \sin^n x \, \sin 2mx \, dx = \int_0^{\pi/2} \sin^n x \, \sin 2mx \, dx + \int_{\pi/2}^\pi \sin^n x \, \sin 2mx \, dx.$$

The result follows by letting $t = \pi - x$ in the second integral.