

7.3 #7

$$\int \sin^3(bx) dx, \quad b \text{ is a constant}$$

Split off $\sin(bx)$

$$\int \sin^2(bx) \sin(bx) dx$$

$$\int (1 - \cos^2(bx)) \sin(bx) dx \quad \begin{array}{l} u = \cos(bx) \\ du = -b \sin(bx) \end{array}$$

$$-\frac{1}{b} \int (1 - u^2) du = -\frac{1}{b} \left(u - \frac{1}{3} u^3 \right) + C$$

$$= -\frac{1}{b} \left(\cos(bx) - \frac{1}{3} \cos^3(bx) \right) + C$$

$$= \frac{1}{3b} \cos^3(bx) - \frac{1}{b} \cos(bx) + C$$