MAC2312: Calculus 2 - Section 3

Quiz 1: 7.1 Integration by Parts

May 13, 2015

1. Evaluate $\int x \cos 5x \; dx$.

   A. $-\frac{1}{5}x \sin 5x - \frac{1}{25}\cos 5x + C$

   B. $\frac{1}{5}x \sin 5x + \frac{1}{25}\cos 5x + C$

   C. $5x \sin 5x + 25 \cos 5x + C$

   D. $-5x \sin 5x - 25 \cos 5x + C$

$$\int x \cos 5x \; dx = x \cdot \frac{1}{5}\sin 5x - \frac{1}{5}\int \sin 5x \; dx \qquad \begin{matrix} u = x & v = \frac{1}{5}\sin 5x \\ du = dx & dv = \cos 5x \; dx \end{matrix}$$

$$= \frac{1}{5}x \sin 5x - \frac{1}{5}(-\frac{1}{5}\cos 5x) + C$$

$$= \frac{1}{5}x \sin 5x + \frac{1}{25}\cos 5x + C$$