

Question #50926– Math – Integral Calculus

$$\int x \cos ax^2 dx$$

Solution:

Let $x^2 = t$, then $2x dx = dt$

Hence:

$$\begin{aligned} \int x \cos ax^2 dx &= \frac{1}{2} \int \cos ax^2 \cdot 2x dx = \frac{1}{2} \int \cos at dt = \\ &= \frac{1}{2a} \sin at + C = \frac{1}{2a} \sin ax^2 + C \end{aligned}$$

Answer:

$$D: \frac{1}{2a} \sin ax^2 + C$$

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