

$$\begin{aligned}
&\text{Let } u = 9x, dv = \cos^2 x \, dx \Rightarrow du = 9 \, dx, v = \int \cos^2 x \, dx \\
&= \int \frac{1}{2}(1 + \cos 2x) \, dx = \frac{1}{2}x + \frac{1}{4} \sin 2x, \text{ so} \\
&\int 9x \cos^2 x \, dx = 9x\left(\frac{1}{2}x + \frac{1}{4} \sin 2x\right) - \int \left(\frac{1}{2}x + \frac{1}{4} \sin 2x\right) 9 \, dx \\
&= \frac{9}{2}x^2 + \frac{9}{4}x \sin 2x - \frac{9}{4}x^2 + \frac{9}{8} \cos 2x + C \\
&= \frac{9}{4}x^2 + \frac{9}{4}x \sin 2x + \frac{9}{8} \cos 2x + C.
\end{aligned}$$