

$$\begin{aligned}\int 3 \cos^2 x \sin 2x \, dx &= 6 \int \cos^3 x \sin x \, dx \stackrel{c}{=} -6 \int u^3 \, du \\ &= -\frac{3}{2}u^4 + C = -\frac{3}{2}\cos^4 x + C\end{aligned}$$