1. Q — $\int 6x\cos(5x)dx$

A —

Let $u = x; v' = \cos(5x)$. Therefore $v = \frac{1}{5}\sin(5x)$

According to integration by parts:

$$\int uv' = uv - \int vu'$$

Therefore $\int 6x\cos(5x)dx = 6\int x\cos(5x)dx = x\frac{6}{5}\sin(5x) - \int \frac{6}{5}\sin(5x)dx$

$= x\frac{6}{5}\sin(5x) - \frac{6}{5}\int \sin(5x)dx$

$= x\frac{6}{5}\sin(5x) + \frac{6}{25}\cos(5x) + C$