

### QUESTION 3

$$\begin{aligned}\int 8z + 4z^3 - 6z^2 dz &= \int 8z dz + \int 4z^3 dz - \int 6z^2 dz \\ &= 8 \int z dz + 4 \int z^3 dz - 6 \int z^2 dz \quad \text{[scribble]} \\ &= 8 \left( \frac{z^2}{2} \right) + 4 \left( \frac{z^4}{4} \right) - 6 \left( \frac{z^3}{3} \right) + C \\ &= \frac{8}{2} z^2 + \frac{4}{4} z^4 - \frac{6}{3} z^3 + C \\ &= 4z^2 + z^4 - 2z^3 + C \\ &= \underline{z^4 - 2z^3 + 4z^2 + C} \quad \checkmark\end{aligned}$$