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① $4A = (6u^2 + 8)i + (4u - 10)j + 8u^3k$ and $B = 3ui + (2j + 5k)$

$\frac{d}{du}(A \cdot B)$

$$(A \cdot B) = 18u^3 + 24u + 8u^2 - 20u - 20u + 50 + 40u^3$$

$$A \cdot B = 18u^3 - 16u + 8u^2 + 50 + 40u^3$$

$$A \cdot B = 58u^3 + 8u^2 - 16u + 50$$

$$\frac{d}{du}(A \cdot B)$$

$$= 174u^2 + 16u - 16$$

② $\frac{dA}{du}$

$$A = (6u^2 + 8)i + (4u - 10)j + 8u^3k$$

$$\frac{dA}{du} = (12u)i + 4j + 24u^2k$$