

$$b \frac{dA}{du} = d[106u^2 + 8j] + [4u + 16j]$$

$$+ 8u^2 + 16j$$

$$= 12u + 4j + 24u^2 + 16j$$

$$\therefore \frac{dA}{du} = 12u + 4j + 24u^2 + 16j$$

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$$\begin{aligned}
 \text{B} \quad A &= (6u^2 + 8)j + (4u + 10)k + 8u^2k \\
 B &= 3uj + (24 - 8)j + 8k
 \end{aligned}$$

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

$$\begin{aligned}
 A \cdot B &= (6u^2 + 8)(3u)j + (4u + 10) \\
 &= (18u^3 + 24u)j + (8u^2 - 2u + 20 - 80) \\
 &\quad + (8u^2 - 4u^3)k
 \end{aligned}$$

$$A \cdot B = (18u^3 + 24u)j + (8u^2 - 80)k + 4u^2k$$

$$\frac{d}{du}(A \cdot B) = \frac{d}{du} [(18u^2 + 24u)j +$$

$$(8u^2 - 80)k + 4u^2k]$$

$$= [(54u^2 + 24)j + (16u)k + 120u^2k]$$

$$\frac{d}{du}(A \cdot B) = (54u^2 + 24)j + 16u^2k + 120u^2k$$