

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

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

$$(A \cdot B) = 18u^3 + 24u + 8u^3 - 20u - 20u + 58 + 40u^3$$

$$A \cdot B = 18u^3 - 16u + 8u^3 + 58 + 40u^3$$

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

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

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

ii.) $\frac{dA}{du}$

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

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