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Civil Engineering

19/ENA03/015

MAT 102 Assignment

Answers

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

$$B = 3ui + (2u - 5)j + 5k$$

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

$$(A \cdot B) = [(6u^2 + 8)(3u)] + [(4u - 10)(2u - 5)] + [(8u^3)(5)]$$

$$\Rightarrow [18u^3 + 24u] + [8u^2 + 50] + [40u^3]$$

$$\therefore (A \cdot B) = 58u^3 + 8u^2 + 24u + 50$$

$$\frac{d}{du}(A \cdot B) \Rightarrow \frac{d}{du}(58u^3 + 8u^2 + 24u + 50)$$

$$\Rightarrow 174u^2 + 16u + 24$$

$$\therefore \frac{dA}{du} = \frac{d}{du}(6u^2 + 8)i + \frac{d}{du}(4u - 10)j + \frac{d}{du}(8u^3)k$$

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