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COURSE: MAT 102

1) $\bar{A} = (6u^2 + 8)i + (4u - 10)j + 8u^3k$

$\bar{B} = 3ui + (2u - 5)j + 5k$

i, $d/du(A \cdot B) = \bar{A} \cdot dB/du + dA/du \cdot \bar{B}$

$dB/du = 3i + 2j$

$dA/du = 12ui + 4j + 24u^2k$

$\bar{A} \cdot dB/du = (6u^2 + 8)i + (4u - 10)j + 8u^3k \cdot 3i + 2j$

$\bar{A} \cdot dB/du = 18u^2 + 24 + 8u - 20$

$= 18u^2 + 8u + 4$

$\bar{B} \cdot dA/du = 3ui + (2u - 5)j + 5k \cdot 12ui + 4j + 24u^2k$

$= 36u^2 + 8u - 20 + 120u^2$

$= 156u^2 + 8u - 20$

$d/du(A \cdot B) = 18u^2 + 8u + 4 + 156u^2 + 8u - 20$

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

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

ii) $dA/du = 12ui + 4j + 24u^2k$