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Mechanical Engineering
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Assignment

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

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

$$i) \underline{A} \cdot \underline{B} = 3u(6u^2 + 8) + (4u - 10)(2u - 5) + 8u^3(+5)$$

$$= 18u^3 + 24u + 8u^2 - 20u - 20u + 50 + 40u^3$$

$$= 58u^3 + 8u^2 - 16u + 50$$

$$\frac{d(A \cdot B)}{du} = 174u^2 + 16u - 16$$

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