

Quiz 8 MATH 2501 FALL 2018

Describe

Compute $\sum_{k=1}^3 (2k^2 + 3k - 1) = (2(1^2) + 3(1) - 1) + (2(2^2) + 3(2) - 1) + (2(3^2) + 3(3) - 1)$

Solution:

$$= (2+3-1) + (8+6-1) + (18+9-1)$$

$$\begin{array}{r} 26 \\ + 13 \\ \hline 39 \end{array}$$

$$\begin{array}{r} + 4 \\ \hline 43 \end{array}$$

$$= 4 + 13 + 26$$

$$= 43$$

OR, ALTERNATIVELY,

Calculate

$$\sum_{k=1}^3 (2k^2 + 3k - 1) = 2 \left(\sum_{k=1}^3 k^2 \right) + 3 \left(\sum_{k=1}^3 k \right) - \left(\sum_{k=1}^3 1 \right)$$

$$= 2 \left(\frac{3(4)(7)}{6} \right) + 3 \left(\frac{3(4)}{2} \right) - 3$$

$$= 28 + 18 - 3$$

$$= 43$$