1.4.12

EE24BTECH11055 - Sai Akhila Reddy Turpu

Question:
The position vector of the point which divides the join of points $2a-3b$ and $a+b$ in the ratio 3 : 1 is:

Solution:
Given
Let C divides A and B in the ratio 3:1
Using Section Formula(k=3)

$$\implies C = \frac{1}{3+1}(3B + A) \tag{0.1}$$

$$\implies C = \frac{1}{4}((3a + 3b) + (2a - 3b)) \tag{0.2}$$

$$\implies C = \frac{5}{4}a \tag{0.3}$$

Vector	Coordinates
A	$2\mathbf{a} - 3\mathbf{b}$
B	$\mathbf{a} + \mathbf{b}$
C	$\frac{5}{4}\ \mathbf{a}$

TABLE 0: Given Values