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:
Using Section Formula(k=3)
If C divides A and B in the ratio k:1, then $C = (kB + A)/k + 1$

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

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

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

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

TABLE 0: Given Values

Original a	Vector obtained after applying section formula $\frac{5}{4}a$	Verification
1.0000	1.2500	True
2.0000	2.5000	True

TABLE 0: Verified values