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)
$C = (kB + A)/k + 1$

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

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

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

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

TABLE 0: Given Values

Row	a	b	A = 2a - 3b	B = a + b	Resultant Vector
Row 1	1.00	3.00	-7.00	4.00	1.25
Row 2	2.00	4.00	-8.00	6.00	2.50

TABLE 0: Verified values