

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($k=3$)

$$C = \frac{kB + A}{k + 1} \quad (0.1)$$

$$C = \frac{1}{3 + 1} (3B + A) \quad (0.2)$$

$$\Rightarrow C = \frac{1}{4} ((3a + 3b) + (2a - 3b)) \quad (0.3)$$

$$C = \frac{5}{4}a \quad (0.4)$$

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