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MATRIC NO: 16/ENG02/020
COURSE: MAT 102

i, $-3(2i-j)+7(3i+j-11k)-8(4i+4j-5k)$

$-6i+3j+21i+7j-77k-32i-32j+40k$

$-17i-22j-37k$

$\therefore -3A+7B-8C=-17i-22j-37k$

ii, $k=2(2i-j)+4(3i+j-11k)-(4i+4j-5k)$

$k=4i-2j+12i+4j-44k-4i+4j-5k=12i+6j-49k$

$k=12i+6j-49k$

$|k|=\sqrt{(12)^2+(6)^2+(-49)^2}=50.80$

$\alpha=\cos a=12/50.80$

$\beta=\cos b=6/50.80$

$\gamma=\cos c=-49/50.80$

iii, $A\times(B\times C)$

$B\times C$
$$\begin{vmatrix} i & -j & k \\ 3 & 1 & -11 \\ 4 & 4 & -5 \end{vmatrix}$$

$i(-5+44)-j(-15+44)+k(12-4)$

$39i+29j+8k$

$A\times(B\times C)$
$$\begin{vmatrix} i & -j & k \\ 2 & -1 & 0 \\ 39 & 29 & 8 \end{vmatrix}$$

$i(-8) - j(16) + k(58+39)$

$-8i - 16j + 97k$

$\therefore A \times (B \times C) = -8i - 16j + 97k$

iv, $(3A \times B) \cdot (A \times 2B)$

$3A = 6i - 3j$

$3A \times B \begin{vmatrix} i & -j & k \\ 6 & -3 & 0 \\ 3 & 1 & -11 \end{vmatrix}$

$i(33) - j(-66) + k(6+9)$

$33i + 66j + 15k$

$2B = 6i + 2j - 22k$

$A \times 2B \begin{vmatrix} i & -j & k \\ 2 & -1 & 0 \\ 6 & 2 & -22 \end{vmatrix}$

$i(22) - j(-44) + k(4+6)$

$22i + 44j + 10k$

$\therefore (3A \times B) \cdot (A \times 2B)$

$(6 \times 22) + (2 \times 4) + (-22 \times 10) = 0$

$A - 2B - C$

$2i - j - (6i + 2j - 22k) - (4i + 4j - 5k)$

$2i - j - 6i - 2j + 22k - 4i - 4j + 5k$

$-8i - 7j + 27k$

$\therefore A - 2B - C = -8i - 7j + 27k$

2) * Two vectors '$\bar{A}$' and '$\bar{B}$' are perpendicular if and only if their scalar product is equal to zero

* Two vectors '$\bar{A}$' and '$\bar{B}$' are said to be coplanar, if their scalar triple product is zero.