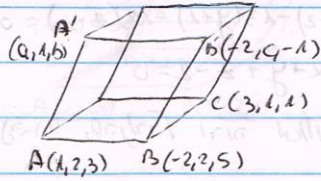


4.25



$$a = A'_x = B'_x + \vec{BA}_x = 1 \quad (1)$$

$$b = A'_z = B'_z + \vec{BA}_z = -3$$

$$c = B'_y = A'_y + \vec{AB}_y = 1$$

$$O = (0, 1, -1) \quad D' = (0, 0, -7)$$

$$\vec{C}' = (3, 0, -5) \quad (2)$$

$$\vec{AC}' = (2, -2, -8)$$

$$\vec{BD}' = (8, -2, -12)$$

$$\cos \alpha = \frac{(2, -2, -8) \cdot (8, -2, -12)}{\sqrt{72} \sqrt{172}} = \frac{116}{\sqrt{72} \sqrt{172}} = \frac{29}{\sqrt{18} \sqrt{53}} = \frac{29}{3\sqrt{106}}$$

$$S = |\vec{AB} \times \vec{BC}| = \begin{vmatrix} i & j & k \\ 3 & 0 & -2 \\ 5 & -1 & -4 \end{vmatrix} = |-2i + 2j - 3k| = \sqrt{17} \quad (3)$$