

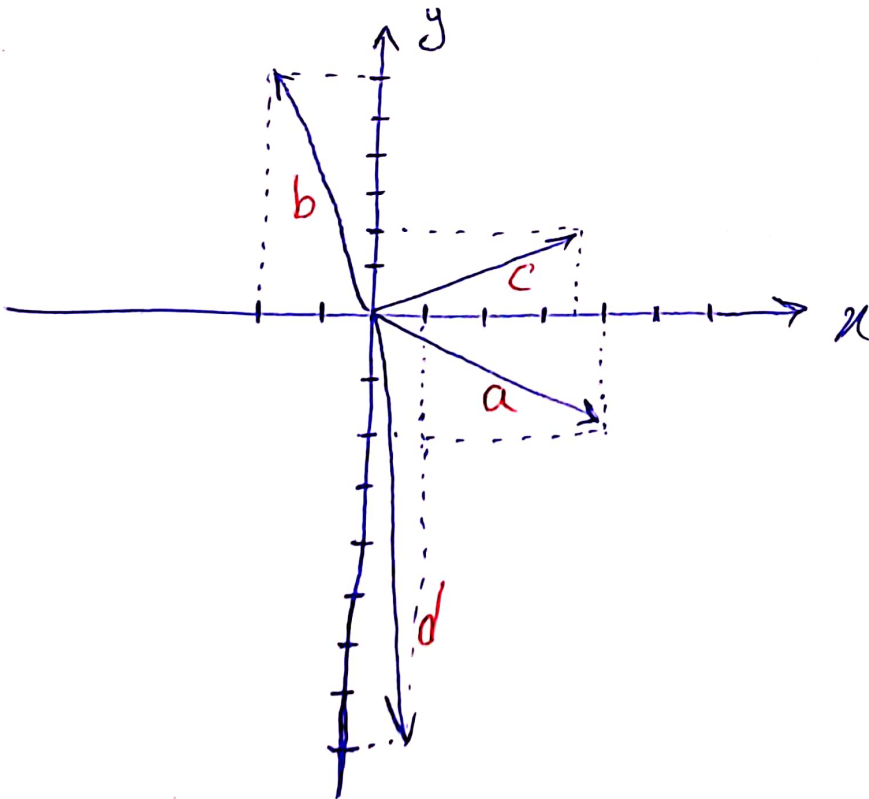
(سوال 1)

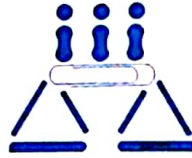
$$a) u + v = (1 + 3, 2 - 4) = (4, -2)$$

$$b) u - v = (1 - 3, 2 + 4) = (-2, 6)$$

$$c) 2u + \frac{1}{2}v = (2, 4) + (1, 0, -2) = (3, 4, -2)$$

$$d) -2u + v = (-2, -4) + (3, -4) = (1, -8)$$





$$2((1, 2, 3) - x) - (-2, 0, 4) = \text{سوال ۴} \\ -2(1, 2, 3)$$

$$\Rightarrow ((2, 4, 6) - 2x) + (2, 0, -4) = (-2, -4, -6)$$

$$\Rightarrow (2, 4, 6) - 2x = (-2, -4, -6) - (2, 0, -4)$$

$$\Rightarrow (2, 4, 6) - 2x = (-4, -4, -2)$$

$$\Rightarrow -2x = (-4, -4, -2) - (2, 4, 6)$$

$$\Rightarrow -2x = (-6, -8, -8)$$

$$\Rightarrow x = (3, 4, 4)$$

$$a) u \cdot v = v \cdot u$$

$$\text{سوال ۹ (a)}$$

$$\Rightarrow u \cdot v = u_x v_x + u_y v_y + u_z v_z = v_x u_x + v_y u_y + v_z u_z \\ = v \cdot u$$