

مثال (1) إذا كان $\vec{B} = 10\mu, 90^\circ$, $\vec{A} = 5\mu, 30^\circ$ أوجد:

$$\vec{A} \times \vec{B} \quad [1]$$

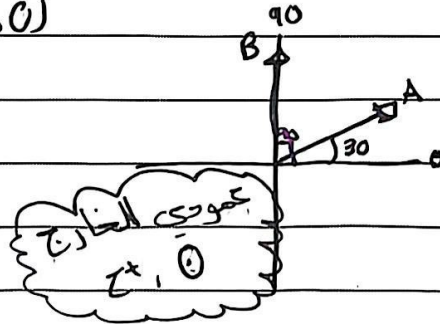
$$\vec{A} \times \vec{B} = |\vec{A}| |\vec{B}| \sin \theta$$

$$= 5 \times 10 \sin (90 - 30)$$

$$= 50 \sin 60$$

$$= 50 \times 0.87$$

$$= +43.5\mu$$



$$\vec{B} \times \vec{A} \quad [2]$$

$$\vec{B} \times \vec{A} = |\vec{B}| |\vec{A}| \sin \theta$$

$$= 10 \times 5 \sin (90 - 30)$$

$$= 50 \sin 60$$

$$= 50 \times 0.87$$

$$= +43.5$$

عمودي الداخل, $z^-, \otimes$

$$-\vec{A} \times \vec{B} \quad [3]$$

$$-\vec{A} \times \vec{B} = 43.5\mu$$

عمودي الداخل, $z^-, \otimes$

$$2\vec{A} \times -\vec{B} \quad [4]$$

$$2\vec{A} \times -\vec{B}$$

$$= 2(\vec{A} \times \vec{B}) = 2(43.5\mu, z^-)$$

$$= 87\mu, z^-$$

$$-3\vec{A} \times -2\vec{B} \quad [5]$$

$$-3 \times -2 (\vec{A} \times \vec{B})$$

$$6 (\vec{A} \times \vec{B}) = 6 (43.5)u, z^+$$

$$= 261u, z^+$$

$$-5\vec{B} \times 2\vec{A} \quad [6]$$

$$-5 \times 2 (\vec{B} \times \vec{A})$$

$$\ominus 10 (\vec{B} \times \vec{A}) = 435u, z^+$$

بالا الاتجاه
للقيمة

$$-4\vec{B} \times -2\vec{A} \quad [7]$$

$$(-4 \times -2) (\vec{B} \times \vec{A}) = 8 (\vec{B} \times \vec{A})$$

$$= 8 (43.5)u, z^-$$

$$= 348u, z^-$$

مثال (2) إذا كان $\vec{B} = 4u, 330^\circ$, $\vec{A} = 2u, 120^\circ$

$$[1] \vec{A} \times \vec{B} = |\vec{A}| |\vec{B}| \sin \theta$$

$$= 2 \times 4 \sin (330 - 120)$$

$$= 8 \sin 210$$

$$= 8 \sin (360 - 210)$$

$$= 8 \sin 150$$

$$= 8 \times 0.5$$

$$= 4u \quad z^-, \otimes, \text{عمودي الداخل}$$

$$[2] \vec{B} \times \vec{A} = 4u, z^+, \odot, \text{عمودي الخارج}$$

$$[3] 2\vec{A} \times \vec{B} = 8u, \otimes, z^-, \text{عمودي الداخل}$$

$$[4] \vec{A} \times -\vec{B} = 4u, \odot, z^+, \text{عمودي الخارج}$$

مثال (3) إذا كان

$\vec{B} = 4u, 60^\circ$ شمال غرب، $\vec{A} = 2u, 30^\circ$ غرب الجنوب 240°

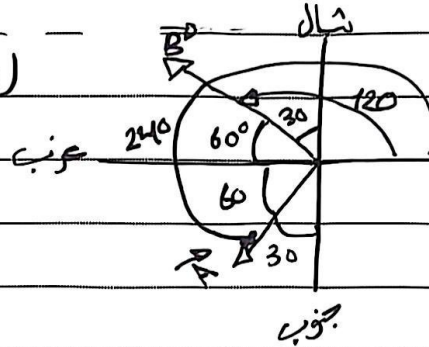
$$[1] \vec{A} \times \vec{B} = |\vec{A}| |\vec{B}| \sin \theta$$

$$= 2 \times 4 \sin (240 - 120)$$

$$= 8 \sin (120)$$

$$= 8 \times 0.87$$

$$= 6.96u, z^-$$



$$[2] \vec{B} \times \vec{A} = 6.96u, z^+$$

$$[3] 2\vec{A} \times -3\vec{B} = -6(\vec{A} \times \vec{B}) = 41.76u, z^-$$

$$[4] -2\vec{A} \times -3\vec{B} = 6(\vec{A} \times \vec{B}) = 41.76u, z^+$$