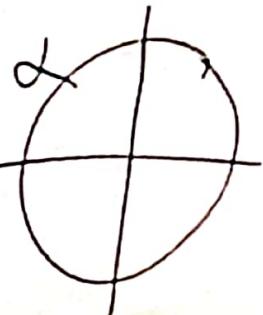


لسم الله الرحمن الرحيم



$C_1d.$   
 $\times - r$   
 $- C_2r.$

$$= 2r + 4\sqrt{r} \quad \frac{100 = 134 + 4\sqrt{r}}{1 + 4\sqrt{r}}$$

مقدار زاوية بيسار باطل ها ٢٠ درجة  
بين أركانها ١٥ درجة

$$|a| = r \quad \theta = 15^\circ \quad \text{رايس = ايس}$$

$$|ra - rb|^2 = (ra - rb) \cdot (ra - rb)$$

$$= 9|a|^2 - 12a \cdot b + 4|b|^2$$

$$= 9r^2 - 12r \times r \cos 15^\circ + 4r^2 =$$

V

مقدار طول بردار

$$|a+b| = \sqrt{|a|^2 + |b|^2}$$

$$|a+b| = \sqrt{|a|^2 + 2a \cdot b + |b|^2}$$

$$= 9 + \epsilon x c x \frac{1}{\epsilon} + \epsilon x 19$$

$$= 9 + 2\epsilon + 4\epsilon = 9V \rightarrow |a+b| = \sqrt{9V}$$

$$|a-b| = \sqrt{|a|^2 - 2a \cdot b + |b|^2}$$

$$+ 9 - \epsilon x c x \frac{1}{\epsilon} + 19 = 9 - 1\epsilon + 19 = 19$$

$$|a-b| = \sqrt{19}$$

اگر زاویه بین دو بردار a, b باشد زاویه بین دو بردار a+b, b باشد

$$\theta = \cos^{-1} \left( \frac{(a+b) \cdot (a-b)}{|a+b| \cdot |a-b|} \right)$$

$$\begin{aligned} (a+b) \cdot (a-b) &= |a|^2 + ba - b^2 \\ &= 9 + \epsilon x c x \frac{1}{\epsilon} - \epsilon x 19 \\ &= \frac{9}{18} + 9 - \epsilon x 19 = -1V \end{aligned}$$

اگر زاویه بین دو بردار a, b باشد زاویه بین دو بردار a+b, b باشد

$$\theta = \cos^{-1} \left( \frac{a \cdot b}{|a| |b|} \right)$$

$$\theta = \cos^{-1} \left( \frac{-1V}{\sqrt{9V} \times \sqrt{19}} \right)$$

لسم الله الرحمن الرحيم

$$C = (29, 9) \quad B = (3, 5, 2), \quad A = (1, 0, 1)$$

مساحت مثلث بـ  $\frac{1}{2} |a \times b|$

$$\vec{AC} = \langle 1, 0, 1 \rangle$$

$$S = \frac{1}{2} |a \times b|$$

$$\vec{AB} = \langle 1, -1, \mu \rangle$$

$$\frac{1}{r} |\vec{AB} \times \vec{AC}| = \frac{1}{r} \sqrt{V \lambda \epsilon}$$

$$\frac{1}{r} \times \sqrt{\lambda} = 14$$

$$\vec{B} \times \vec{AC} = \begin{vmatrix} i & j & k \\ 1 & -1 & \mu \\ 1 & 0 & 1 \end{vmatrix} = (-\mu - 1)i - (1 + \mu)j + (1 + \lambda)k = -\mu i - j + \lambda k$$

V

حکم طلب راهنمایی و ریاضیات زبان دوبلر

$$|a+ib|^2 = |a|^2 + a \cdot b + b \cdot a + |b|^2$$

$$= 9 + 4 \times c \times \frac{1}{x} + 4 \times 19$$

$$= 9 + 4 \Sigma + 4 \Sigma = 9V \rightarrow |a+ib|=$$

$$|a-b|^2 = |a|^2 - 2a \cdot b + |b|^2$$

$$+ 9 - 4 \times c \times \frac{1}{x} + 4 \times 19 = 9 - 4 \times \frac{1}{x} + 4 \times 19 = 1V$$

$$|a-b| = \sqrt{1V}$$

a-b , a+ib , a-b , a+ib

آخر زاویه بین دو بردار را بجذبه

$$\theta = \cos^{-1} \left( \frac{a \cdot b}{|a||b|} \right)$$

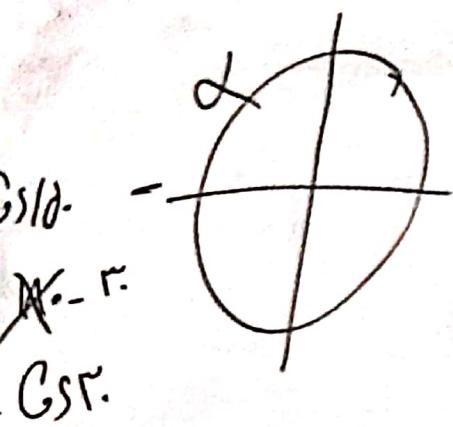
$$\theta = \cos^{-1} \left( \frac{-1V}{\sqrt{9V} \times \sqrt{1V}} \right)$$

$$\theta = \cos^{-1} \left( \frac{(a+ib) \cdot (a-b)}{|a+ib| \cdot |a-b|} \right)$$

$$(a+ib)(a-b) = |a|^2 + b \cdot a - b \cdot a - |b|^2$$

$$= 9 + 4 \times c \times \frac{1}{x} - 4 \times 19$$

$$= \frac{9+4-4c}{x} = -1V$$



CS10.  
X - r.  
CSR.

$$r_a + 90\sqrt{r} + 100 = 134 + 90\sqrt{r}$$

$$|r_a| = \sqrt{134 + 90\sqrt{r}}$$



حروف a, b, r در دارای رکتبه با طول های 2r و زوایه

بین آنها باز نظریه طول بردار

$$|a| = r \quad \theta = 10^\circ \quad \text{راستایی}$$

$$|b| = \omega$$

$$|r_a - r_b|^2 = (r_a - r_b) \cdot (r_a - r_b)$$

$$= 9|a|^2 - 2r_a \cdot b + r^2|b|^2$$

$$= 9 \times r^2 - 2 \times r \times r \cos 10^\circ + r^2 \times \omega^2 =$$

$$\begin{aligned}
 V(t) &= \cos t i - \sin t j + r k \\
 V &= -\sin t i + \cos t j + r k \\
 \alpha &= -\cos t i - \sin t j + r k \\
 |V(t)| &= \sqrt{(-\sin t)^2 + (\cos t)^2 + (r)^2} = \sqrt{r^2 + 1} \\
 |\alpha(t)| &= \sqrt{(-\cos t)^2 + (-\sin t)^2 + r^2} = \sqrt{r^2 + \omega^2} \\
 V(t) \cdot \alpha(t) &= (\cos t)(-\sin t) + (\cos t)(-\sin t) + (r)(r) = r^2
 \end{aligned}$$

$$\theta = \cos^{-1} \left( \frac{V(t) \cdot \alpha(t)}{|V(t)| |\alpha(t)|} \right) = \cos^{-1} \left( \frac{r^2}{\sqrt{\omega^2 + r^2}} \right)$$

$$\ddot{\theta} = \dot{\cos^{-1}} \left( \frac{r^2}{\sqrt{\omega^2 + r^2}} \right)$$

محاصله معنایی را بسیار کمتر از نصف  $(-2, 4, \omega)$  می‌باشد

$$\rightarrow n = \langle \omega, -2, 4 \rangle \quad \omega(x - (-2)) + (-2)(y - 4) + 4(z - \omega) = 0$$

$$\omega x + 10 - 2y + 8 + 4z - 4\omega = 0$$

$$\omega x - 2y + 4z + 12 = 0$$

$$\begin{aligned}
 & \vec{r}(t) = \cos t i + \sin t j + t k \\
 & \vec{v} = -\sin t i + \cos t j + r k \\
 & \vec{\alpha} = -\cos t i - \sin t j + r k \\
 & \theta = \cos^{-1} \left( \frac{\vec{v}(t) \cdot \vec{\alpha}(t)}{|\vec{v}(t)| |\vec{\alpha}(t)|} \right) = \cos \left( \frac{-1}{\sqrt{r^2 + 1}} \right) \\
 & \ddot{\theta} = \frac{d}{dt} \left( \cos^{-1} \left( \frac{-1}{\sqrt{r^2 + 1}} \right) \right) \\
 & \left| \vec{v}(t) \right| = \sqrt{(-\sin t)^2 + (\cos t)^2 + r^2} = \sqrt{r^2 + 1} \\
 & \left| \vec{\alpha}(t) \right| = \sqrt{(-\cos t)^2 + (-\sin t)^2 + r^2} = \sqrt{r^2 + 1} \\
 & \vec{v}(t) \cdot \vec{\alpha}(t) = (-\sin t)(-\cos t) + (\cos t)(-\sin t) + r(r) = r
 \end{aligned}$$

محاذل متفاوتی را بتواند که از نقطه  $(-x_0, y_0, z_0)$  مبدأ صفر باشد  
 $\omega x - \gamma y + \beta z = 0$

$$\rightarrow n = \langle \omega, -\gamma, \beta \rangle \quad \omega(n - (-r)) + (-r)(y - r) + \beta(z - \omega) = 0$$

$$\omega x + 10 - \gamma y + \lambda + \beta z - 1 \omega = 0$$

$$\omega x - \gamma y + \beta z + 1 = 0$$

نقطة  $(\mu, \omega, 1)$

$$\left\langle \frac{\nu - \mu - 1}{\mu} \right\rangle = \frac{y + 1}{\mu} = \frac{\nu - \mu - 2}{1}$$

$$V = \left\langle \frac{\nu}{\mu}, \nu - \frac{1}{\mu} \right\rangle \rightarrow \left\langle \mu, \nu - 1 \right\rangle$$

$$\frac{\nu - \mu}{\mu} = \frac{y - \omega}{\lambda} = \frac{z - 1}{-1}$$

$$A = (\mathbb{M}, \delta, I)$$

$$V = \langle r, \vartheta, -\omega \rangle$$

$$\begin{cases} x = rt + r \\ y = \vartheta t + \vartheta \\ z = -\omega t + l \end{cases}$$

$$\frac{x-r}{r} = \frac{y-\vartheta}{\vartheta} = \frac{z-l}{-\omega}$$

معادل معادل خط

$$B(0, -r, 1) \quad A(r, 0, 0)$$

उसका दूरी

$$AB = \langle r - r, -r - 0, 1 - 0 \rangle = \langle -r, -r, -r \rangle$$



$$\left\{ \begin{array}{l} x = -rt + r \\ y = -rt + 0 \\ z = -rt + 0 \end{array} \right.$$

(A)

$$\left\{ \begin{array}{l} x = -rt \\ y = -rt - r \\ z = -rt + 1 \end{array} \right.$$

(B)

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

$$C = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}, B = \begin{pmatrix} 3 & 4 & 5 \\ 6 & 7 & 8 \\ 9 & 0 & 1 \end{pmatrix}, A = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 1 \end{pmatrix}$$

مساحت مثلث برهان علی

$$\vec{AC} = \langle 1, 0, 1 \rangle$$

$S = \frac{1}{2} |\vec{a} \times \vec{b}|$

$$\vec{AB} = \langle 1, -1, 1 \rangle$$

$$\frac{1}{2} |\vec{AB} \times \vec{AC}| = \frac{1}{2} \sqrt{1+1+1} = \frac{\sqrt{3}}{2}$$

$$\vec{B} \times \vec{AC} = \begin{vmatrix} i & j & k \\ 1 & -1 & 1 \\ 0 & 1 & 0 \end{vmatrix} = (-1-0)i - (1+1)j + (0+1)k = -1i - 2j + 1k$$

V

خطه طول بر اهمی a, b, a+b و a-b زایین در درا

آخر را و بین دو بردار a, b را بجواه

$$\theta = \cos^{-1} \left( \frac{a \cdot b}{|a||b|} \right)$$

$$\theta = \cos^{-1} \left( \frac{-1V}{\sqrt{9V} \times \sqrt{1V}} \right)$$

$$\theta = \cos^{-1} \left( \frac{(a+ib) \cdot (a-b)}{|a+ib| \cdot |a-b|} \right)$$

$$\begin{aligned} (a+ib)(a-b) &= |a|^2 + ba - b^2 \\ &= 9 + r \times c \times \frac{1}{r} + r \times 19 \\ &= 9 + 2\varepsilon + 9\varepsilon = 9V \rightarrow |a+ib| = \\ &\quad \text{AA} \end{aligned}$$

$$\begin{aligned} |a-b|^2 &= |a|^2 - 2a \cdot b + |b|^2 \\ &= 9 - r \times c \times \frac{1}{r} + 19 = 9 - 19 + 19 = 1V \\ |a-b| &= \sqrt{1V} \end{aligned}$$

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



CS1/2.  
M1-2.  
CS2.

$$- 39 + 40\sqrt{F} + 100 = 139 + 40\sqrt{F}$$

$$|r_a| = \sqrt{139 + 40\sqrt{F}}$$

مقدار a, b در دایره کسر با طول های 2, 8 و زاویه

$r_a - r_b$  با طول دایره

$$|r_a - r_b|^2 = (r_a - r_b) \cdot (r_a - r_b)$$

$$= 9|r_a|^2 - 2r_a \cdot b + r_b^2$$

$$= 9 \times F - 2 \times \frac{|r_a| |r_b| \cos 120^\circ}{\cancel{r_a - r_b}} + \frac{100}{\cancel{r_a - r_b}}$$

$$\begin{aligned}
 & V(t) = \cos t i + \sin t j + r k \\
 & \dot{V} = -\sin t i + \cos t j + r' k \\
 & \lambda = -\cos t i - \sin t j + r k
 \end{aligned}$$

$\theta = \cos^{-1} \left( \frac{V(t) \cdot \lambda(t)}{|V(t)| |\lambda(t)|} \right)$

$$\begin{aligned}
 |V(t)| &= \sqrt{(-\sin t)^2 + (\cos t)^2 + r^2} = \sqrt{r^2 + 1} \\
 |\lambda(t)| &= \sqrt{(-\cos t)^2 + (-\sin t)^2 + r'^2} = \sqrt{r^2}
 \end{aligned}$$

$$\theta = \cos^{-1} \left( \frac{r t}{\sqrt{r^2 + r'^2}} \right)$$

$$\cancel{\lambda(t) \cdot \lambda(t)} = (-\sin t)(-\cos t) + (\cos t)(-\sin t) + (r')(r) = r t$$

محاوله سفیری را بتوانید که از نظر  $(\omega, \alpha, \beta)$  مذکور (و با صفت) مذکوری باشد

$$\vec{n} = \langle \omega, -\alpha, \beta \rangle \quad \omega(n - (-\alpha)) + (-\alpha)(\beta - \gamma) + \beta(2 - \omega) = 0$$

$$\omega x + 10 - \alpha y + \lambda + \beta z - \omega \delta = 0$$

$$\omega x - \alpha y + \beta z + \gamma = 0$$

$\tau - \rho$

نقطة  $(\mu, \alpha, 1)$

$$\frac{\gamma - \mu n - 1}{\mu} = \frac{y + 1}{\mu} = \frac{\mu - \rho z}{1}$$

$$\nabla \rightarrow \left\langle \frac{\mu}{\rho}, \alpha - \frac{1}{\rho} \right\rangle \rightarrow \left\langle \mu, \alpha - 1 \right\rangle$$

$$\frac{\gamma - \mu}{\mu} = \frac{y - \alpha}{\alpha} = \frac{z - 1}{-1}$$

$$A = (M, \delta, I)$$

$$V = \langle r, \delta, -\omega \rangle$$

$$\left. \begin{array}{l} x = rt + r \\ y = \omega t + \varphi \\ z = -rt + l \end{array} \right\}$$

$\frac{x-r}{r} = \frac{y-\varphi}{\omega} = \frac{z-l}{-r}$

معادل معادل خط

$$B(0, -\gamma, 1) \quad A(\gamma, 0, \delta)$$

محل وج

$$AB = \langle \gamma - \gamma, -\gamma - 0, 1 - 0 \rangle = \langle 0, -\gamma, 1 \rangle$$



$$\begin{cases} x = -\gamma t + \gamma \\ y = -\gamma t + 0 \\ z = -\gamma t + 1 \end{cases}$$

(A)

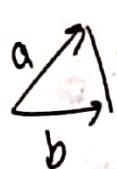
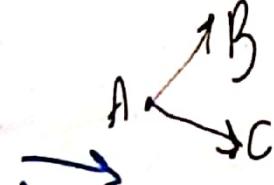
$$\begin{cases} x = -\gamma t \\ y = \gamma t - \gamma \\ z = -\gamma t + 1 \end{cases}$$

(B)

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

$$C = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{pmatrix}, B = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}, A = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

مساحت مثلث بدل عاى



$$S = \frac{1}{2} |a \times b|$$

$$\vec{AC} = \begin{pmatrix} 1 & 0 & 0 \end{pmatrix}$$

$$\frac{1}{r} |\vec{AB} \times \vec{AC}| = \frac{1}{r} \sqrt{V \lambda E}$$

$$\frac{1}{r} \times \cancel{\lambda} = V$$

$$\vec{AB} = \begin{pmatrix} 1 & 0 & -1 \\ 0 & 1 & -1 \\ 0 & 0 & 1 \end{pmatrix}$$

$$\begin{vmatrix} i & j & k \\ 1 & 0 & -1 \\ 0 & 1 & -1 \\ 0 & 0 & 1 \end{vmatrix}$$

$$\vec{B} \times \vec{AC} = \begin{vmatrix} i & j & k \\ 1 & 0 & -1 \\ 0 & 1 & -1 \\ 0 & 0 & 1 \end{vmatrix} = (-1-0)i - (1+1)j + (0+1)k = -1i - 2j + 1k$$

آخر زاویه بین دو بردار  $a$  و  $b$  را بجذبه

$$\theta = \cos^{-1} \left( \frac{a \cdot b}{|a||b|} \right)$$

$$\theta = \cos^{-1} \left( \frac{-1V}{\sqrt{9V} \times \sqrt{1V}} \right)$$

$a - b$  و  $a + b$  را بین دو بردار  $a$  و  $b$  بجهة طول بردار  $a$  و  $b$

$$\theta = \cos^{-1} \left( \frac{(a + b) \cdot (a - b)}{|a + b| \cdot |a - b|} \right)$$

$$(a + b)(a - b) = |a|^2 - |b|^2$$

$$= 9 + 1V - 1V = 9V$$

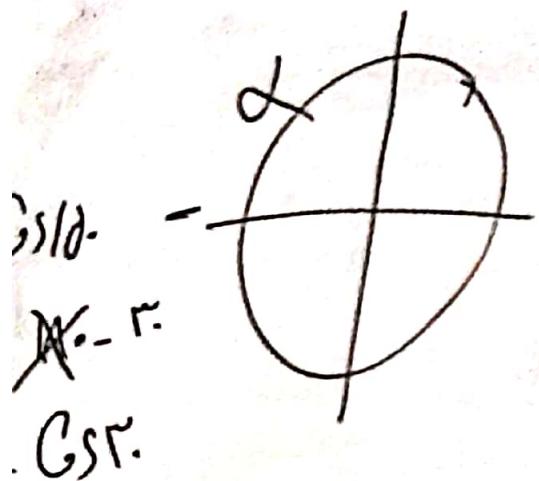
$$= \underbrace{9}_{18} + \underbrace{1V}_{18} - \underbrace{1V}_{18} = -1V$$

$$|a + b|^2 = |a|^2 + |b|^2 + 2a \cdot b$$

$$= 9 + 1V + 2V = 9V \rightarrow |a + b| =$$

$$|a - b|^2 = |a|^2 + |b|^2 - 2a \cdot b$$

$$= 9 - 1V + 1V = 9V \rightarrow |a - b| = \sqrt{9V}$$



350.  
A. - r.  
GSR.

$$- 34 + 90\sqrt{F} + 100 = 134 + 90\sqrt{F}$$

$$|r_a| = \sqrt{34 + 90\sqrt{F}}$$

مطابق با طول های آر a و آر b  
بين آنها با طول را برابر

$$|a| = r \quad \theta = 10^\circ \quad \text{راستایی}$$

$$|b| = \omega$$

$$|r_a - r_b|^2 = (r_a - r_b) \cdot (r_a - r_b)$$

$$= 9|a|^2 - 2r_a \cdot b + r^2 |b|^2$$

$$= 9|a|^2 - 2r_a \cdot b + r^2 |b|^2$$

$$= 9x^2 - 2x \times \frac{\omega x - F}{x} + \frac{100}{x}$$