

کلیاتی / ۱۸

الف $\tan \frac{11\mu}{F} + \sin \frac{10\mu}{F} \cos \frac{13\mu}{F}$

$\downarrow$
 $\tan(\mu - \frac{\mu}{F}) \rightarrow \tan(\mu - \frac{\mu}{F}) = -\tan \frac{\mu}{F} = -1$

$\sin \frac{10\mu}{F} \rightarrow \sin(\mu - \frac{\mu}{F}) = -\sin(\mu - \frac{\mu}{F}) = -\frac{\sqrt{\mu}}{F}$

$\cos(\mu + \frac{\mu}{F}) \rightarrow \cos(\mu + \frac{\mu}{F}) = -\frac{\sqrt{\mu}}{F}$

$-1 - \left(\frac{\sqrt{\mu}}{F}\right)\left(-\frac{\sqrt{\mu}}{F}\right) = -1 + \frac{1}{F} = -\frac{1}{F}$

ب $\tan \frac{14\mu}{9} \sin \frac{11\mu}{\mu} + \cos \frac{10\mu}{\mu}$

$\tan(\mu - \frac{\mu}{9}) = \tan(\mu - \frac{\mu}{9}) = -\tan \frac{\mu}{9} = -\frac{\sqrt{\mu}}{\mu}$

$\sin \frac{11\mu}{\mu} = \sin(\mu - \frac{\mu}{\mu}) = \sin(\mu - \frac{\mu}{\mu}) = \sin(-\frac{\mu}{\mu})$

$\cos \frac{10\mu}{\mu} = \cos(\mu + \frac{\mu}{\mu}) = \cos(\mu + \frac{\mu}{\mu}) = -\cos \frac{\mu}{F} = -\frac{1}{F}$

$\left(-\frac{\sqrt{\mu}}{\mu}\right)\left(-\frac{\sqrt{\mu}}{F}\right) = \frac{1}{F} = \frac{1}{F} - \frac{1}{F} = 0$

$\cot x = F \quad \frac{\mu \cos x - \sin x}{\cos x + \sin x} = \frac{1 \sin x - \sin x}{F \sin x + \sin x} = \frac{11 \sin x}{\cos \sin x}$

$\downarrow$
 $\frac{\cos x}{\sin x} = F \rightarrow F \sin x = \cos x$

$\sin x = F \cos x$

$\cos x = F$

$\sin^2 x + \cos^2 x = 1$

$(F \cos x)^2 + \cos^2 x = 1 \rightarrow \cos^2 x = 1$

$\cos^2 x = 1 \rightarrow \cos x = \pm \frac{1}{\sqrt{10}}$

$\mu \cos x \rightarrow \cos x = \frac{1}{\sqrt{10}} \times \frac{\sqrt{10}}{\sqrt{10}} = \frac{-\sqrt{10}}{10}$

الف $\sin x = \frac{\sqrt{F}}{10}$

$1 = \sin^2 x + \cos^2 x \rightarrow \sin^2 x = \frac{1}{100} = \frac{1}{100}$

$\cos x = \pm \sqrt{\frac{1}{100}} = \pm \frac{1}{10} \rightarrow \pm \frac{1}{10\sqrt{10}}$

$\cos(\frac{11\mu}{F} + x)$
 $\mu + \frac{\mu}{F} + x$

$$\cos\left(\frac{\mu u}{F} + \alpha\right) = \cos \frac{\mu u}{F} \cos \alpha - \sin \frac{\mu u}{F} \sin \alpha$$

$$\cos \alpha + \sin \alpha = \frac{-V}{\omega \sqrt{F}} + \frac{\sqrt{F} \sqrt{F}}{10 \sqrt{F}} \quad \underbrace{\left(\frac{-\sqrt{F}}{F} \quad \frac{\sqrt{F}}{F} \right)}_{-\frac{\sqrt{F}}{F} (\cos \alpha + \sin \alpha)}$$

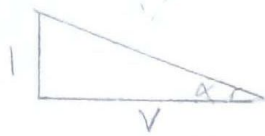
$$\frac{-4}{\omega \sqrt{F}}$$

$$\cos\left(\frac{11u}{F} + u\right) = -\frac{\sqrt{F}}{F} \times \left(\frac{-4}{\omega \sqrt{F}}\right) = \frac{-1}{F} \times \frac{-4}{\omega} = \frac{4}{10}$$

$\frac{2}{5}$

$$\tan \alpha = \frac{1}{V}$$

$$\tan \alpha = \frac{1}{V}$$



$$\sqrt{1+V^2} \rightarrow \sqrt{1+V^2} = \omega \sqrt{F}$$

$$\sin\left(\frac{11u}{F} + \alpha\right) = \sin \alpha + \cos \alpha \quad \left\{ \begin{array}{l} \sin \alpha = \frac{1}{\omega \sqrt{F}} \\ \cos \alpha = \frac{V}{\omega \sqrt{F}} \end{array} \right.$$

$$\sin\left(\mu u + \frac{u}{F} + \alpha\right) = \frac{1}{\omega \sqrt{F}} \sin\left(\mu + \frac{u}{F} + \alpha + \frac{\mu u}{F}\right)$$

$$\sin(\mu + \theta) = -\sin \theta \quad \leftarrow \sin\left(\mu + \left(\frac{u}{F} + \alpha\right)\right)$$

$$\alpha + \frac{u}{F} = \theta \quad \rightarrow \sin\left(\frac{u}{F} + \alpha\right)$$

$$\sin\left(\frac{u}{F} + \alpha\right) = \sin \frac{u}{F} \cos \alpha + \cos \frac{u}{F} \sin \alpha$$

$$\sin \frac{u}{F} = \cos \frac{u}{F} = \frac{\sqrt{F}}{F}$$

$$\frac{\sqrt{F}}{F} \cos \alpha + \frac{\sqrt{F}}{F} \sin \alpha =$$

$$\frac{\sqrt{F}}{F} (\sin \alpha + \cos \alpha) = \frac{\sqrt{F}}{F} \times \frac{1}{\omega \sqrt{F}} = \frac{1}{F \omega} = \frac{F}{10}$$

$$\sin\left(\frac{11u}{F} + \alpha\right) = \frac{-F}{\omega}$$

$$P \sin^r u + \cos^r u = \frac{F}{\omega}$$

$$P(1 - \cos^r u) + \cos^r u = \frac{F}{\omega}$$

$$P - P \cos^r u + \cos^r u = \frac{F}{\omega}$$

$$P - \cos^r u = \frac{F}{\omega} \quad \rightarrow \cos^r u = \frac{P}{\omega}$$

$$\sin^r u = 1 - \cos^r u = 1 - \frac{P}{\omega} = \frac{1}{\omega}$$

$$\tan^r u = \frac{1}{\frac{P}{\omega}} = \frac{\omega}{P}$$

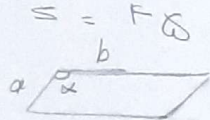
$$F \cos \alpha - \frac{q}{p} = \frac{1}{p} \times q \times \sqrt{\mu} \sin \alpha$$

$$\sin \alpha = \frac{\mu}{p \sqrt{\mu}} \times \frac{\sqrt{\mu}}{\sqrt{\mu}} = \frac{\mu \sqrt{\mu}}{q} = \left(\frac{\sqrt{\mu}}{p} \right)$$

$$\alpha_{\min} = 0^\circ$$

$$\alpha_{\max} = 10^\circ$$

$$\begin{aligned} \text{Jal. } \alpha &\rightarrow 0^\circ \rightarrow \frac{\sqrt{\mu}}{p} \\ \text{P. } \alpha &\rightarrow 10^\circ \rightarrow \frac{\sqrt{\mu}}{p} \end{aligned}$$



$$\frac{a}{b} = \frac{\mu}{p}$$

$$s = a \cdot b \cdot \sin \alpha$$

$$b \sin \alpha = (PK) \cdot (\mu K) \cdot \sin 10^\circ$$

$$s = q K^p \times \frac{1}{p} = \frac{\mu K^p}{p}$$

$$\mu K^p = F \cos \alpha \rightarrow K^p = 11 \rightarrow K = \sqrt[3]{11}$$

$$a = PK = 4\sqrt{p}$$

$$b = \mu K = 9\sqrt{p}$$

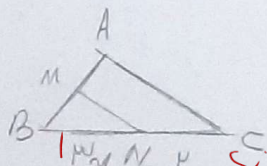
$$P = P_a + P_b = \mu(4\sqrt{p} + 9\sqrt{p}) =$$

$$\mu \sqrt{p}$$

$$\sin A \left(\frac{1}{p} \times q \times V - \frac{1}{p} \times F \times V \right) = \frac{V}{p}$$

$$\frac{V}{p} \sin A = \frac{V}{p} \rightarrow \sin A = \frac{p}{p} = 1$$

$$A = 90^\circ \rightarrow \tan A = \frac{\sqrt{\mu}}{p}$$



$$\frac{|\sin \alpha|}{\cos \alpha} = -\frac{1}{\cos \alpha} = \frac{\sin \alpha}{\cos \alpha}$$

$$|\sin \alpha| = -\sin \alpha$$

$$-\frac{1}{\cos \alpha} = -\tan \alpha \rightarrow \tan \alpha = \frac{1}{\cos \alpha}$$

$$\sin \alpha < 0$$

$$s_{BNM}$$

$$= \frac{BM \times BN}{BA \times BC} = \frac{BM}{AB} \times \frac{BN}{BC} = \frac{1}{p}$$

$$s_{ABC}$$

$$\frac{BM}{AB}$$

$$= \frac{1}{p} \rightarrow \frac{BM}{AB} = \frac{1}{p}$$

$$\frac{1}{|\cos|} - \frac{\sin}{\cos} = \frac{1 + \sin}{|\cos|}$$

$$\frac{1}{|\cos|} = \frac{(1 + \sin)}{\cos} = \frac{\sin}{\cos}$$

$$\frac{-\sin}{|\cos|} = \frac{\sin}{\cos} \rightarrow \cos \alpha < 0$$