

(1)

$$\frac{a \sin(\pi + \frac{\pi}{4}) + b \cos(\pi + \frac{\pi}{4})}{a \sin(\pi - \frac{\pi}{4}) + b \cos \pi} = \frac{-a \sin \frac{\pi}{4} + (-b \cos \frac{\pi}{4})}{-a \sin \frac{\pi}{4} + b \cos \frac{\pi}{4}} = -\tan \frac{\pi}{4}$$

$$a \sin(\pi - \frac{\pi}{4}) + b \cos \pi$$

$$\Rightarrow -\sqrt{2}a - \sqrt{2}b = a - b$$

$$\Rightarrow -\sqrt{2}a = \sqrt{2}b$$

$$\frac{-\frac{\sqrt{2}}{2}a - \frac{\sqrt{2}}{2}b}{-\frac{1}{2}a + \frac{1}{2}b} = -\frac{\sqrt{2}}{1} \Rightarrow \frac{-\sqrt{2}a - \sqrt{2}b}{-a + b} = -1 \Rightarrow \frac{-\sqrt{2}a - \sqrt{2}b}{-a + b} = -1 \Rightarrow \frac{b}{a} = -\sqrt{2}$$

$$P|_y \rightarrow \frac{\sqrt{2}}{2}$$

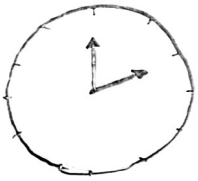
$$P'|_1$$

$$PP' = \sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{\sqrt{2}-\sqrt{2}}{1}\right)^2} = \sqrt{\frac{1-2\sqrt{2}}{2}} = \sqrt{2-2\sqrt{2}}$$

$$\Rightarrow P = \sqrt{2-2\sqrt{2}}$$

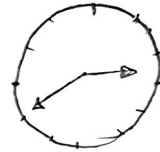
(2)

(3)



$$\frac{\pi}{4} = 45^\circ$$

$$\frac{45^\circ}{45^\circ} \quad \frac{45^\circ}{45^\circ}$$

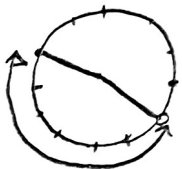


$$180^\circ$$

$$\alpha = \left| \frac{11M}{P} - 40 \right| \Rightarrow P_0 = \left| \frac{11M}{P} - 40 \right| \Rightarrow \frac{11M}{P} - 40 = P_0 \Rightarrow \frac{11M}{P} = 40 + P_0$$

$$\hookrightarrow \frac{11M}{P} - 40 = -P_0 \Rightarrow \frac{11M}{P} = 40 - P_0 \Rightarrow M = \frac{40 - P_0}{11} \text{ min}$$

(4)



$$\Rightarrow \max \sin = \frac{1}{P}$$

$$\min \sin = -1$$

$$\Rightarrow -1 \leq \frac{M-P}{\omega} \leq \frac{1}{P} \Rightarrow -\omega \leq M-P \leq \frac{\omega}{P}$$

$$\Rightarrow -P \leq M \leq \omega$$

$$\frac{-\sin(40+10) + k \cos(40-10)}{\cos(10-10) + \mu \sin(10+10)} \Rightarrow \frac{-\cos 10 - k \sin 10}{-\cos 10 - \mu \sin 10} = \mu$$

$$\tan 10 = \frac{1}{\mu} \Rightarrow \frac{\sin 10}{\cos 10} = \frac{1}{\mu} \Rightarrow \sin 10 = \frac{\cos 10}{\mu} \Rightarrow \frac{-\cos 10 - k \sin 10}{-\cos 10 - \mu \sin 10} = \mu \Rightarrow \frac{\mu + k}{\mu} = \mu \Rightarrow \boxed{k = 1\mu}$$

$$\frac{\cot x + \cot x}{\tan x + \mu \tan x} = \frac{\mu \cot x}{-\tan x} = -\mu \left(\frac{\cos x}{\sin x} \right) = -\mu \left(\frac{\cos x}{\sin x} \right)$$

$$1 - \cos x = \mu + \mu \cos x \Rightarrow \mu \cos x = -1 \Rightarrow \cos x = -\frac{1}{\mu} \Rightarrow \sin^2 x + \cos^2 x = 1 \Rightarrow \sin^2 x = \frac{1}{\mu^2} \Rightarrow \sin x = \frac{1}{\mu} \Rightarrow -\mu \left(\frac{1}{\mu} \right) = -\mu \left(\frac{1}{\mu} \right) = -\frac{1}{\mu}$$

$$\frac{10\lambda}{100} = \frac{\text{Rad}}{\pi} \Rightarrow \frac{10\lambda\pi}{100} = \frac{4\pi}{10} \Rightarrow \frac{\mu\pi}{\omega}$$

$$\Rightarrow \alpha r \Rightarrow \frac{\mu\pi}{\omega} \times r_A = \frac{4\pi}{10} \times r_B \Rightarrow \frac{r_A}{r_B} = \frac{4\pi}{10} \times \frac{\omega}{\mu\pi} = \frac{\mu}{\mu}$$

$$\Rightarrow \frac{S_A}{S_B} = \frac{r_A^2}{r_B^2} = \left(\frac{r_A}{r_B} \right)^2 = \frac{4}{\mu}$$

$$\hat{D} = 40 \Rightarrow \frac{BD}{AD} = \frac{1}{\mu} \Rightarrow AD = \mu, AB = \sqrt{\mu}$$

$$\Rightarrow S_{ABC} = \frac{1}{2} \times AB \times BC = \sqrt{\mu} \Rightarrow BC = \mu$$

$$\sin C = \mu \sin \angle C \Rightarrow \mu \left(\frac{\sqrt{\mu}}{\mu} \right) \left(\frac{\mu}{\mu} \right) = \frac{\mu \sqrt{\mu}}{\mu}$$

$$\theta + \alpha + \alpha = 40 \Rightarrow \theta + \mu\alpha = 40$$

$$\Rightarrow \sin \mu\alpha = \cos \theta$$

$$\Rightarrow \cos \theta = \frac{1}{\mu} \Rightarrow \sin \theta = \frac{\mu}{\mu}$$

$$\Rightarrow \sin \mu\alpha = \mu \sin \alpha \cos \alpha = \mu \left(\frac{\mu}{\mu} \right) \left(\frac{\mu}{\mu} \right) = \frac{\mu}{\mu}$$

