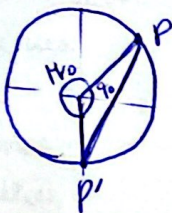


$$\frac{a \sin(\pi + \frac{\pi}{4}) + b \cos(\pi + \frac{\pi}{4})}{a \sin(\pi - \frac{\pi}{4}) + b \cos \frac{\pi}{4}} = \frac{-\frac{\sqrt{2}}{2}a - \frac{\sqrt{2}}{2}b}{-\frac{a}{2} + \frac{b}{2}} = -\frac{\sqrt{2}}{2} \quad (1)$$

$$\frac{-\sqrt{2}(a+b)}{-a+b} = -\frac{\sqrt{2}}{2} \Rightarrow 2a+2b = -a+b \Rightarrow 3b = -3a \Rightarrow b = -a \quad \frac{b}{a} = -\frac{1a}{a} = -1$$



$$\cos p = \frac{1}{2} \Rightarrow p = 60^\circ \Rightarrow \sin p = \frac{\sqrt{3}}{2}$$

$$40 + 210 = 250$$

$$\Delta_{pop} = \frac{1}{2} \times 1 \times 1 \times \sin 90^\circ = \frac{1}{2}$$

ساعت ۱۲
۱۲/۹ = ۱۲۰°
۱۲/۹ = ۱۲۰°
۱۲/۹ = ۱۲۰°
۱۲/۹ = ۱۲۰°



زاویه بین دو عقربه
زاویه بین عقربه
عقربه ساعت
عقربه ساعت
عقربه ساعت



$$\frac{90}{360} = \frac{180}{720} \rightarrow \text{زاویه بین عقربه}$$

$$\frac{180}{360} = \frac{180}{720} \rightarrow \text{زاویه بین عقربه}$$

$$\Rightarrow \frac{180}{720} + \frac{180}{720} = \frac{360}{720} = \frac{1}{2}$$



$$-1 \leq \sin x \leq \frac{1}{2} \Rightarrow -1 \leq \frac{m-2}{5} \leq \frac{1}{2} \Rightarrow -2 \leq m \leq \frac{11}{5}$$

$$\frac{\sin(\theta + \alpha) + k \cos(\theta - \alpha)}{\cos(\theta - \alpha) + r \sin(\theta + \alpha)} = \frac{\cos \theta \sin \alpha + \sin \theta \cos \alpha - k \sin \alpha}{-\cos \theta \sin \alpha + r \sin \alpha} = r$$

(9)

تقسیم بر $\cos \alpha$

$$\frac{1 - r k}{-1 - r \alpha} = r \Rightarrow 1 - r k = -r \alpha \Rightarrow \frac{k}{r} = \alpha \Rightarrow k = r \alpha$$

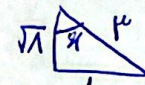
$$\frac{\cos \alpha + \cos \alpha}{-\tan \alpha + r \tan \alpha} = \frac{r \cos \alpha}{-r \tan \alpha} = \frac{r}{r} \times \frac{\cos \alpha}{-\sin \alpha} = \frac{r}{r} \times \frac{1}{-\frac{1}{r}} = \frac{-1}{r}$$

(10)



$$\frac{1 - \cos \alpha}{1 + \cos \alpha} = r \Rightarrow r + r \cos \alpha = 1 - \cos \alpha$$

$$r \cos \alpha = -1 \Rightarrow \cos \alpha = -\frac{1}{r}$$

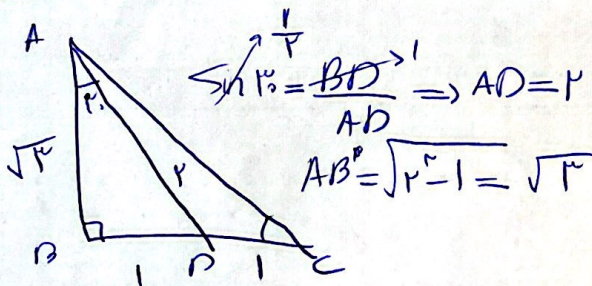


$$\sin \alpha = \pm \frac{1}{r} \Rightarrow \sin \alpha = \frac{1}{r}$$

$$\frac{10\lambda}{\mu_A} \times \frac{1}{r} \times r_A = \frac{9\pi}{\mu_B} \times \frac{1}{r} \times r_B \Rightarrow \frac{9}{r} r_B = \frac{10}{r} r_A \Rightarrow r_B = \frac{10}{9} r_A$$

(11)

$$\frac{r_A}{r_B} = \left(\frac{r_A}{r_B} \right)^r = \left(\frac{r_A}{\frac{10}{9} r_A} \right)^r = \frac{9}{10}$$

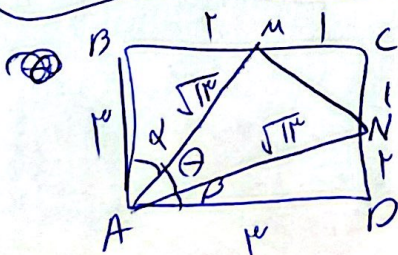


(12)

$$\frac{AB \times BC}{r} = \sqrt{r} \Rightarrow \sqrt{r} \times BC = r \sqrt{r} \Rightarrow BC = r$$

$$\tan C = \frac{\sqrt{r}}{1} \Rightarrow C = 45^\circ$$

$$\sin C = \sin 45^\circ = \frac{\sqrt{r}}{r}$$



(13)

$$(\alpha + \beta) + \theta = 90^\circ \Rightarrow \sin \theta = \cos(\alpha + \beta)$$

$$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta = \frac{r}{\sqrt{r}} \times \frac{r}{\sqrt{r}} - \frac{1}{\sqrt{r}} \times \frac{r}{\sqrt{r}}$$

$$= \frac{9}{10} - \frac{1}{10} = \frac{8}{10} = \sin \theta$$