

تکلیف سر کلاس

مریم کوکلی ۲۰ روز بعد A و B

$$\frac{a \sin \frac{\pi}{4} + b \cos \frac{\pi}{4}}{a \sin \frac{11\pi}{4} + b \cos \frac{\pi}{4}} = \tan \frac{\pi}{4} \quad \frac{b}{a} = ?$$

(سوال ۱)

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

$$\tan \frac{\pi}{4} = \frac{\sin 150}{\cos 150} = \frac{\frac{1}{2}}{-\frac{\sqrt{3}}{2}} = -\frac{\sqrt{3}}{3}$$

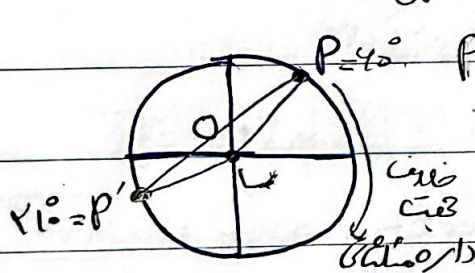
(۲)

$$\frac{-\sqrt{2}(a+b)}{-\frac{a}{2} + \frac{b}{2}} = -\frac{\sqrt{2}}{2}$$

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

$$\Rightarrow 2a + 2b = b - a \Rightarrow 3a = -3b$$

$$\Rightarrow 3a = -3b \quad \frac{b}{a} = -1 \quad \boxed{-1} \quad \checkmark$$



$$\widehat{PP'} = 90^\circ$$

مسافت کوتاه‌ترین

$$P = \left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right) \rightarrow \left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{1}{\sqrt{2}}\right)^2 = 1$$

(سوال ۲)

$$\Rightarrow y^2 = \frac{1}{2} \Rightarrow y = \frac{1}{\sqrt{2}} \Rightarrow P = 45^\circ$$

$$opp' = \frac{r}{2} + pp'$$

$$1 = \widehat{PP'} \text{ (دایره واحد)}$$

$$PP' = \sqrt{op^2 + op'^2 - 2(op)(op')\cos 150}$$

$$= \sqrt{1 + 1}$$

$$\boxed{\text{مسافت} = 1 + \sqrt{2}} \quad \checkmark$$

(سوال ۳)

$$\frac{\pi}{9} \times \frac{180}{\pi} = 20^\circ$$

$$q_{\min} \xrightarrow{\text{مسافت}} 20^\circ$$

بالاترین مسافت

$$\boxed{C_{\min} = 2 \cdot 20^\circ} \quad \checkmark$$

$$q_{\min} \xleftarrow{\text{مسافت}} 20^\circ$$

پایین‌ترین مسافت

(۲)

آپادانا

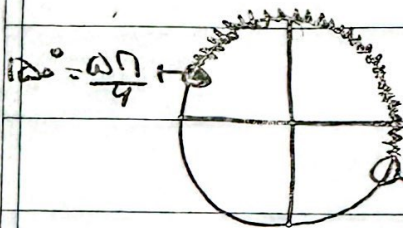
(سوال ۴)

$$\alpha = |\omega/\omega_M - r_0 h| \rightarrow r_0 = |\omega/\omega_M - q_0|$$

↓
 $\omega/\omega_M - q_0 = r_0 \rightarrow \boxed{m = r_0}$ ✓
 $\omega/\omega_M - q_0 = -r_0 \rightarrow m = \frac{r_0}{\omega/\omega} = \frac{140}{11}$
 با اول

$$-\frac{\pi}{4} \leq \alpha \leq \frac{\pi}{4} \quad \sin \alpha = \frac{m-r}{a}$$

(سوال ۵)



$$-\frac{1}{r} \leq \sin \alpha \leq 1 *$$

✓

$-\frac{\pi}{4} = 135^\circ \rightarrow \sin 135^\circ = -\frac{1}{r}$

* $\rightarrow -\frac{1}{r} \leq \frac{m-r}{a} \leq 1 \xrightarrow{\times a} -\frac{a}{r} \leq m-r \leq a \xrightarrow{+r} \frac{1}{r} \leq m \leq 1$

✓ $\boxed{\frac{1}{r} \leq m \leq 1}$ ✓

$k=5$ $\frac{\sin(10^\circ) + k \cos(140^\circ)}{\cos(140^\circ) + r \sin(140^\circ)} = r \quad \tan 10^\circ = 0.176$ (سوال ۶)

$$\rightarrow \frac{\sin(\frac{\pi}{9} + 10^\circ) + k \cos(\frac{7\pi}{9} - 10^\circ)}{\cos(\frac{7\pi}{9} - 10^\circ) + r \sin(\frac{7\pi}{9} - 10^\circ)} = r \rightarrow \frac{\cos k - k \sin 10^\circ}{-\cos k - r \sin 10^\circ} = r$$

$$\div \cos 10^\circ \rightarrow \frac{1 - k \tan 10^\circ}{-1 - r \tan 10^\circ} = r \Rightarrow \frac{1 - 0.176k}{-1.176} = r \Rightarrow 1 - 0.176k = -1.176r$$

$$\Rightarrow -0.176k = -1.176r \Rightarrow \boxed{k = 2r}$$

✓

آپادانا

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

$$\frac{\tan(\frac{\pi}{2} - \alpha) - \cot(\pi - \alpha)}{\cot(\frac{\pi}{2} - \alpha) + r \tan(\pi - \alpha)} = ?$$

(سوال ٧)

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

$$\cos^2 \alpha + \sin^2 \alpha = 1 \rightarrow \frac{1}{r^2} + \sin^2 \alpha = 1 \Rightarrow \sin^2 \alpha = \frac{r^2 - 1}{r^2} \Rightarrow \sin \alpha = +\frac{\sqrt{r^2 - 1}}{r}$$

• $\cos \alpha = -1 \Rightarrow \sin \alpha = 0$ ← (ممنوع)

$$\frac{\cot \alpha + r \cot \alpha}{\tan \alpha - r \tan \alpha} = \frac{r \cot \alpha}{-\tan \alpha} = -\frac{r \cot \alpha}{\tan \alpha} = -r \left(\frac{r}{1/r} \right)$$

$$\downarrow \frac{1}{\cot \alpha} = \boxed{-\frac{1}{r}}$$

$$\cot \alpha = \frac{\cos \alpha}{\sin \alpha} = \frac{-\frac{1}{r}}{\frac{\sqrt{r^2 - 1}}{r}} = \frac{-1}{\sqrt{r^2 - 1}} = \frac{r}{\sqrt{r^2 - 1}}$$

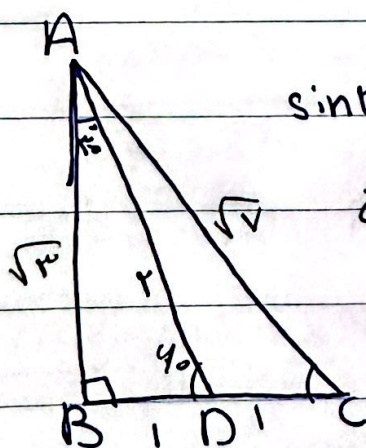
(سوال ٨)

$$10 \times \frac{\pi}{180} = \frac{r \pi}{a} \quad \text{و } \angle A = \alpha \Rightarrow \frac{r}{a} = \frac{\sin \alpha}{\sin R} \Rightarrow RA = \frac{r \sin \alpha}{\sin R}$$

$$\Rightarrow RA = 1, 2 RB$$

$$\frac{SA}{SB} = \left(\frac{RA}{RB} \right)^r = \left(\frac{1, 2 RB}{RB} \right)^r = \boxed{\frac{r, 2 \Delta}{r, 5}} \quad \checkmark$$

(سوال ٩)



$$\sin \alpha = ?$$

$$\text{في } \triangle ABD \rightarrow \sin \alpha = \frac{AD}{r} \Rightarrow 1 = \frac{AD}{r} \Rightarrow AD = r$$

$$\text{في } \triangle ABC \rightarrow \sin 40^\circ = \frac{AD \times \sqrt{5}}{r} = \frac{r \times \sqrt{5}}{r} \Rightarrow AB = \sqrt{3}$$

$$S_{\triangle ABC} = \frac{AB \times BC}{2} \Rightarrow \frac{\sqrt{3} \times 2}{2} = \frac{\sqrt{5} \times BC}{2} \Rightarrow BC = 2 \rightarrow BD + DC = 2$$

$$\Rightarrow DC = 1 \quad AC = \frac{BC}{\sin \alpha} + \frac{AB}{\cos \alpha} \Rightarrow AC = \sqrt{5}$$

الاجابة

Subject:

Year:

Month:

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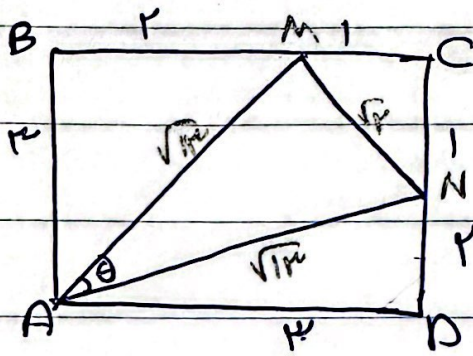
$$\sin^2 \hat{C} = r \sin \hat{C} \cos \hat{C}$$

$$\sin \hat{C} = \frac{\sqrt{r}}{\sqrt{v}}$$

$$\underbrace{\sin^2 \hat{C}}_{\frac{r}{v}} + \underbrace{\cos^2 \hat{C}}_{\frac{r}{v}} = 1$$

$$\frac{r}{v} \Rightarrow \cos \hat{C} = \frac{r}{\sqrt{v}}$$

$$\Rightarrow \sin^2 \hat{C} = r \times \frac{\sqrt{r}}{\sqrt{v}} \times \frac{r}{\sqrt{v}} = \boxed{\frac{r\sqrt{r}}{v}} \quad \checkmark$$



$$\sin \theta = ?$$

(100) 100

$$MN = \sqrt{r} \quad AM = AN = \sqrt{1r}$$

$$\frac{MN^2}{r} = \frac{AM^2}{1r} + \frac{AN^2}{1r} - \frac{r(AM)(AN)\cos \theta}{1r}$$

$$\Rightarrow r = r - r \cos \theta \Rightarrow r \cos \theta = r \Rightarrow \cos \theta = \frac{r}{1r} \quad \checkmark$$

$$\sin^2 \theta + \underbrace{\cos^2 \theta}_{\frac{1}{1r}} = 1 \Rightarrow \sin^2 \theta = \frac{r}{1r} \Rightarrow \boxed{\sin \theta = \frac{r}{1r}} \quad \checkmark$$