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نام و نام خانوادگی ..[illegible]..   پاسخنامه تشریحی تکلیف شماره ..۱۲....   کلاس ..[illegible]..

$$\frac{a\sin\frac{4\pi}{3}+b\cos\frac{7\pi}{6}}{a\sin\frac{11\pi}{6}+b\cos\frac{\pi}{3}}=\tan\frac{5\pi}{6}$$

$$\frac{a(-\frac{\sqrt3}{2})+b(-\frac{\sqrt3}{2})}{a(-\frac12)+b(\frac12)}=\frac{\sqrt3(a+b)}{(a-b)}=-\frac{\sqrt3}{3}\to 3a+3b=b-a \qquad b=-2a$$

$$3a+3b=\sqrt3 b-a \quad (3-\sqrt3)b=-4a\to \frac{b}{a}=\frac{4}{\sqrt3-3} \qquad \boxed{\frac{b}{a}=-2}$$

$$\frac{a\sin(\frac{3\pi}{2}-\frac{\pi}{6})+b\cos(\pi+\frac{\pi}{6})}{a\sin(2\pi-\frac{\pi}{6})+b\cos(\frac{\pi}{2}-\frac{\pi}{6})}=\frac{-a\cos\frac{\pi}{6}-b\cos\frac{\pi}{6}}{-a\sin\frac{\pi}{6}+b\cos\frac{\pi}{3}}=\frac{-\frac{\sqrt3}{2}(a+b)}{-\frac12(a-\sqrt3 b)}=\frac{\sqrt3 a+\sqrt3 b}{a-\sqrt3 b}=\frac{-1}{\sqrt3}$$ 1

1

$P\left|\begin{matrix}\cos\alpha\\ \sin\alpha\end{matrix}\right.$ $\quad P=\left|\begin{matrix}\frac12\\ \frac{\sqrt3}{2}\end{matrix}\right.\to\alpha=\frac{\pi}{3}$

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$\alpha\xrightarrow{\text{۲۱۰ در خلاف جهت}}\alpha+210=\alpha+\frac{7\pi}{6}=\frac{\pi}{3}+\frac{7\pi}{6}=\frac{3\pi}{2}=\beta$ 2

$(\frac12)^2+y^2=1\to y=\pm\frac{\sqrt3}{2}\xrightarrow{\text{ربع اول}}+\frac{\sqrt3}{2}$

$S_{OPP'}=\frac12\times1\times\sqrt{2+\sqrt3}=\frac12\sqrt{2+\sqrt3}$

$\to\hat O=\frac{\pi}{2}+\frac{\pi}{3}=150^\circ\to PP'=\sqrt{OP^2+OP'^2-2\,OP\,OP'\cos\hat O}=\sqrt{1+1-2\times1\times1\times\cos150^\circ}=\sqrt{2+\sqrt3}$

$$\frac{\frac{\pi}{6}}{\frac{\pi}{9}}=\frac{6\ min}{?}\to ?=\frac{\frac{\pi}{9}\times 60}{\frac{\pi}{6}}=40\,min$$ 3

ساعت ۲ : ۴۰ دقیقه

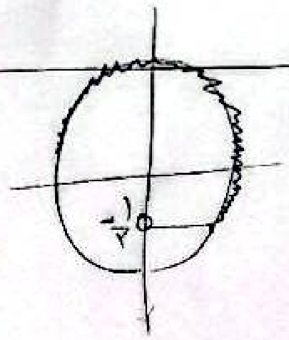
2

$20=150\sin(0.5M-90)$ $\to 0.5M-90=-30\to 0.5M=60\to M=120$ بار اول

$\to 0.5M-90=210\to 0.5M=300\to M=600$ بار دوم 4

بیدار شده‌ایم

2



$$-\frac12<\sin x\le1\to-\frac12<\frac{m-10}{5}\le1\to$$

$$\frac12<m\le8$$ 5

2

$8,\dots,1\to 8$ عدد صحیح

$$\frac{\sin(\frac{\pi}{2}+\alpha)+k\cos(\frac{3\pi}{2}-\alpha)}{\cos(\pi-\alpha)+2\sin(\pi+\alpha)}=\frac{\cos\alpha-k\sin\alpha}{-\cos\alpha-2\sin\alpha}\xrightarrow{\div\cos}\frac{1-k\tan\alpha}{-1-2\tan\alpha}$$ ۶

$$\to\frac{1-0/25k}{-1-0/5}=-3\to 1-\frac{1}{4}k=-\frac{9}{2}\to\frac{1}{4}k=\frac{11}{2}\to k=22$$ ۲

$1-\cos x=2+2\cos x \to 3\cos x=-1\to\cos x=-\frac{1}{3}$ — $\sin x>0$, $\cos x<0$ (۲ع)

$\sin x=\sqrt{1-\cos^2 x}\to\sqrt{1-\frac{1}{9}}\to\frac{\sqrt{8}}{3}\to\tan x=-\sqrt{8}$ ۲ ۷

$\cot x=\frac{-1}{\sqrt{8}}$

$$\frac{\tan(\frac{\pi}{2}-x)-\cot(\pi+x)}{\cot(\frac{3\pi}{2}-x)+2\tan(2\pi-x)}=\frac{\cot x+\cot x}{\tan x-2\tan x}\longrightarrow\frac{-2\cos^2 x}{\sin^2 x}=-2\cot^2 x=\frac{-1}{4}$$

طول کمان = زاویه × شعاع $\longrightarrow A=\frac{108}{180}\pi\times r_A=\frac{3}{5}\pi\times r_A$ ۸

$B\to\frac{9\pi}{10}\times r_B$ $\Big)\longrightarrow\frac{6\pi}{10}r_A=\frac{9\pi}{10}r_B$

$\frac{r_A}{r_B}=\frac{3}{2}$ ۲

$$\frac{S_A}{S_B}=\frac{\pi r_A^2}{\pi r_B^2}=\left(\frac{3}{2}\right)^2=\frac{9}{4}$$

$\tan 30=\frac{BD}{AB}\to\frac{1}{\sqrt{3}}=\frac{1}{AB}\longrightarrow AB=\sqrt{3}$ $\Big)$ $AC=\sqrt{3+4}=\sqrt{7}$

$S_{ABC}=\frac{AB\times BC}{2}\Rightarrow\sqrt{3}=\frac{\sqrt{3}\times BC}{2}\longrightarrow BC=2$ ۹

$\sin 2C=2\sin C\cos C\longrightarrow\sin 2C=2\times\frac{\sqrt{3}}{\sqrt{7}}\times\frac{2}{\sqrt{7}}=\boxed{\frac{4\sqrt{3}}{7}}$ ۲

$\sin C=\frac{\sqrt{3}}{\sqrt{7}}$ $\cos C=\frac{2}{\sqrt{7}}$

$AM=AN\longrightarrow\sqrt{2^2+3^2}=\sqrt{13}$ $\overset{\Delta}{ABM},\overset{\Delta}{ADN}$ همنهشت ۲

$MN=\sqrt{2\times1}=\sqrt{2}$

$MN^2=AN^2+AM^2-2AN\times AM\cos\theta\longrightarrow 2=\underbrace{13+13}_{26}-\underbrace{2\sqrt{13}\sqrt{13}}_{26}\cos\theta$ ۱۰

$26\cos\theta=24$

$\cos\theta=\frac{12}{13}$

$$\sin\theta=\sqrt{1-\cos^2\theta}=\sqrt{1-\left(\frac{12}{13}\right)^2}=\frac{5}{13}$$