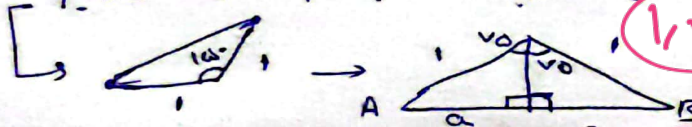


سوال ۲ ← با توجه به طول نقطه P زاویه ۴۰ است

اگر ۲۱۵ درجه در خلاف جهت عقربه‌های ساعت به زاویه ۲۱۵ می‌رسیم



$$\sin 75 \rightarrow \sin(45+30) = \sin 45 \cos 30 + \sin 30 \cos 45 = \frac{\sqrt{2}}{2} \cdot \frac{\sqrt{3}}{2} + \frac{1}{2} \cdot \frac{\sqrt{2}}{2} = \frac{\sqrt{2} + \sqrt{6}}{4}$$

$$AB = 2a = 2 \times \sin(75) \times 1 = \sqrt{2} + \sqrt{6}$$

$$\text{مسافت} = 1 + 1 + \frac{\sqrt{2} + \sqrt{6}}{2} = \frac{2 + \sqrt{2} + \sqrt{6}}{2}$$

دقت کن دختر!

$$|-10 \times \frac{1}{3} + (5/5)| = 20$$

$$|-90 + 5/5 \times m| = 20 \rightarrow -90 + 5/5 \times m = -20 \rightarrow m = 14$$

معادله داشت ۲۰ دقیقه بزرگ با ۲۰ درجه می‌شود



$$\frac{\sin(150) + k \cos(150)}{\cos(150) + r \sin(150)} = \frac{r + -k}{-r - r \times 1} = 3$$

$$r - k = -18 \rightarrow k = -22$$

$$\frac{1}{F} = \frac{\sin 15}{\cos 15}$$

$$\text{سوال ۳} \leftarrow \text{نسبت درجه به کل} \leftarrow \frac{K}{r \times 60} = \frac{15}{180}$$

$$\frac{1}{3} \times \frac{2}{3} = \frac{2}{9}$$

$$\frac{2}{9} \times \frac{20}{3} = 10 \text{ min} \rightarrow \boxed{22 \text{ } 30'}$$



$$-\frac{1}{2} < \sin x \leq 1$$

$$-\frac{1}{2} < \frac{m - \pi}{\omega} \leq 1 \rightarrow \frac{\pi}{2} < m - \pi \leq \omega$$

$$\frac{\pi}{2} < m \leq \omega + \pi$$

$$m = \{1, 2, 3, \dots, 1\} \rightarrow \boxed{8 \text{ عدد}}$$

نسبت مساحت = $\frac{A \text{ مساحت}}{B \text{ مساحت}} = \frac{A \text{ شعاع}^2}{B \text{ شعاع}^2}$ سوال ۸ $\frac{9 \times 10^6}{10^6} \times \frac{1 \text{ متر}}{10^6} = 9 \times 10^{-6} = 144$

$R_A \propto A = R_B \propto B \rightarrow \frac{R_A}{R_B} = \frac{A}{B} = \frac{9 \times 10^6}{10^6} = \frac{144}{10^6} = \frac{12}{10^3}$

(نسبت مساحت) $R = \text{نسبت مساحت} \rightarrow \left(\frac{12}{10^3}\right)^2 = \frac{144}{10^6}$

مساحت A برابر مساحت B است

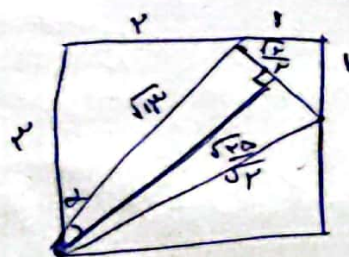
سوال ۷ $\frac{\tan\left(\frac{\pi}{2} - x\right) - \cot(\pi - x)}{\cot\left(\frac{\pi}{2} - x\right) + \tan(\pi - x)} = \frac{\cot(x) + \cot(x)}{\tan(x) + \tan(x)}$
 $\frac{2 \cot(x)}{-\tan(x)} = \frac{2 \times \frac{\cos x}{\sin x}}{-\frac{\sin x}{\cos x}} = -2 \times \frac{\cos^2 x}{\sin^2 x}$ ①

$\frac{1 - \cos x}{1 + \cos x} = 2 \rightarrow 2 + 2 \cos x = 1 - \cos x$

$\left[-\frac{1}{2}\right] = \cos x \leftarrow 1 = -3 \cos x$

$\sin^2 x + \cos^2 x = 1 \rightarrow \sin^2 x = \frac{16}{9}$

① $\rightarrow -2 \times \frac{\cos^2 x}{\sin^2 x} = \frac{\frac{1}{9}}{\frac{16}{9}} = -2 \times \frac{1}{16} = \left[-\frac{1}{8}\right]$



سوال ۱۰ $\sqrt{x^2 + y^2} = \sqrt{13}$
 $\sqrt{x^2 + y^2} = \sqrt{13} \div \sqrt{13} = \frac{\sqrt{13}}{\sqrt{13}}$

$\sin \alpha = \frac{\frac{\sqrt{5}}{\sqrt{13}}}{\frac{\sqrt{13}}{\sqrt{13}}} = \frac{\sqrt{5}}{\sqrt{13}}$

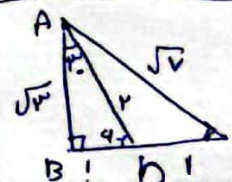
$(\sqrt{13})^2 = \left(\frac{\sqrt{5}}{\sqrt{13}}\right)^2 + y^2 \rightarrow 13 = \frac{5}{13} + y^2 \rightarrow y^2 = 12 \frac{8}{13} \rightarrow y = \sqrt{\frac{128}{13}}$

$\cos \alpha = \frac{\frac{\sqrt{13}}{\sqrt{13}}}{\frac{\sqrt{13}}{\sqrt{13}}} = \frac{\sqrt{13}}{\sqrt{13}}$

$\Rightarrow \sin^2 \alpha = \sin^2 \alpha \cos^2 \alpha = \frac{5}{13} \times \frac{\sqrt{5}}{\sqrt{13}} \times \frac{\sqrt{13}}{\sqrt{13}} = \frac{\sqrt{13}}{\sqrt{13}}$

$\sin \alpha$

$\frac{5}{13} = 11$



سوال ۹ $AB \text{ ضلع} = \frac{\sqrt{3}}{2} \times 2 = \sqrt{3}$

$\text{وتر} = 2 \times 1 = 2$

$r = BC \leftarrow \frac{\sqrt{3} \times BC}{2} = \sqrt{3} \leftarrow \frac{\text{مساحت} \times \text{ارتفاع} \times \text{مربع}}{2}$

$\rightarrow DC = 1$

$AB^2 + BC^2 = AC^2 \rightarrow 3 + 1 = 4 \rightarrow AC = \sqrt{4}$

$\frac{C}{\sin C} = \frac{AB}{\sin B} \rightarrow \frac{\sqrt{4}}{1} = \frac{\sqrt{3}}{\sin C} \rightarrow \sin C = \frac{\sqrt{3}}{2}$

$\sin^2 C + \cos^2 C = 1 \rightarrow \frac{3}{4} + \cos^2 C = 1 \rightarrow \cos^2 C = \frac{1}{4}$

$\cos C = \frac{1}{2}$

$\sin^2 C = \frac{3}{4} \times \frac{1}{4} = \frac{3}{16}$