

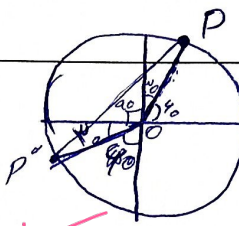
نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۱۲ کلاس: B

$$\sin\left(\frac{6\pi}{3}\right) = \frac{\sqrt{3}}{2} \quad \cos\left(\frac{4\pi}{6}\right) = \frac{\sqrt{3}}{2} \quad \sin\left(\frac{11\pi}{6}\right) = -\frac{1}{2} \quad \cos\left(\frac{2\pi}{3}\right) = -\frac{1}{2}$$

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

$$\rightarrow 3a = -2b \rightarrow \frac{b}{a} = -\frac{2}{3} \quad \checkmark$$

$P \mid \begin{matrix} \cos \alpha \\ \sin \alpha \end{matrix} \rightarrow \cos \alpha = \frac{1}{2} \rightarrow \alpha = 90^\circ$



$$PP' = \sqrt{OP^2 + OP'^2 - 2OP \times OP' \cos \theta}$$

$$\sqrt{1+1-2\cos 100} = \sqrt{2+\frac{2\sqrt{3}}{2}} = \sqrt{2+\sqrt{3}} \rightarrow PP' = \sqrt{2+\sqrt{3}}$$

$$\text{مسافت} = \sqrt{2+\sqrt{3}} + 1 = 2 + \sqrt{2+\sqrt{3}} \quad \checkmark$$

ماعت ۲ و حیل دقیقه خواهد شد $\rightarrow \alpha = 40^\circ$

دقیقه	درجه
۹۰	۲۰
۲۰	۹۰

$$\frac{\pi}{a} = \frac{110}{a} = 20^\circ \quad \checkmark$$

$$\left| \frac{11}{2}M - 90H \right| \rightarrow \left| \frac{11}{2}M - 90 \right| = 20 \rightarrow \frac{11}{2}M - 90 = 20 \rightarrow M = 20$$

$$\rightarrow \frac{11}{2}M - 90 = -20 \rightarrow M = \frac{140}{11}$$

در دقیقه ۲۰ برای بار دوم زاویه ۲۰ درجه خواهد شد $\leftarrow$

$$-\frac{1}{2} < \sin \alpha \leq 1 \rightarrow -\frac{1}{2} < \frac{m-3}{a} \leq 1 \rightarrow 0.5 < m \leq 1 \quad \checkmark$$

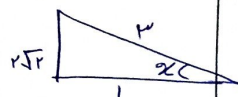
$$\frac{\sin(100^\circ) + k \cos(140^\circ)}{\cos(140^\circ) + r \sin(140^\circ)} = r \rightarrow \frac{\cos(110^\circ) - k \sin(110^\circ)}{-\cos(110^\circ) - r \sin(110^\circ)} = r \rightarrow \frac{1 - k \tan(110^\circ)}{-1 - r \tan(110^\circ)} = \frac{1 - 0.173k}{-1 - r \times 0.173}$$

$$= \frac{1 - 0.173k}{-1.173} = r \rightarrow 1 - 0.173k = -r \rightarrow 0.173k = \frac{1}{r} \rightarrow k = \frac{1}{r} \rightarrow k = 2r$$

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

$$\rightarrow \sin x = \frac{r\sqrt{r}}{r}$$



$$\frac{\tan(\frac{\pi}{4} - x) - \cot(\frac{\pi}{4} - x)}{\cot(\frac{\pi}{4} - x) + r \tan(\frac{\pi}{4} - x)} = \frac{\cot x + \cot x}{\tan x - r \tan x} = \frac{\frac{r \cos x}{\sin x}}{\frac{-\sin x}{\cos x}} = \frac{r \cos x}{-\sin x}$$

$$= \frac{r \times (\frac{-1}{r})}{-\frac{r\sqrt{r}}{r}} = \frac{\frac{-r}{r}}{-\frac{r}{r}} = \frac{-1}{-1} = 1$$

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$$\frac{10 \times \frac{r}{10}}{10} \times R_A = \frac{9 \times \frac{r}{10}}{10} \times R_B \rightarrow \frac{r}{10} R_A = R_B$$

$$\frac{S_A}{S_B} = \frac{R_A}{R_B} = \frac{R_A}{\frac{r}{10} R_A} = \frac{10}{r}$$

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$$\sin(100^\circ) = \frac{BD}{AB} \Rightarrow \frac{1}{r} = \frac{1}{AB} \rightarrow AB = r$$

$$S = \frac{AB \times BC}{r} = \frac{r \times BC}{r} = \sqrt{r} \rightarrow BC = \sqrt{r}$$

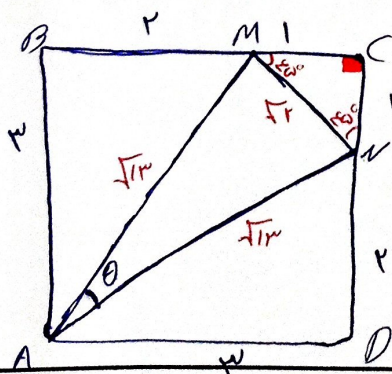
$$\overline{BC} = \overline{BD} + \overline{CD} \Rightarrow \sqrt{r} + r = \overline{AC} \rightarrow \overline{AC} = \sqrt{r} + r = r \rightarrow \overline{AC} = \sqrt{r}$$

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$$\sin C = \frac{AB}{AC} = \frac{r}{\sqrt{r}}$$

$$\cos C = \frac{BC}{AC} = \frac{\sqrt{r}}{\sqrt{r}}$$

$$\sin C = r \sin C \cos C = r \times \frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{r\sqrt{r}}{r}$$



$$\overline{MN} = \sqrt{\overline{AM}^2 + \overline{AN}^2 - 2 \overline{AM} \times \overline{AN} \times \cos \theta}$$

$$\sqrt{r} = \sqrt{1^2 + 1^2 - 2 \times 1 \times 1 \times \cos \theta}$$

$$r = 2 - 2 \cos \theta \rightarrow -2 \cos \theta = -r \rightarrow \cos \theta = \frac{r}{2}$$

$$\rightarrow \cos \theta = \frac{1}{\sqrt{r}} \rightarrow \sin \theta = \frac{\sqrt{r}}{\sqrt{r}}$$

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