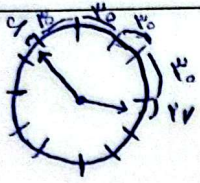


نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۱۹... کلاس: مسئله A



$$3: 4^\circ$$

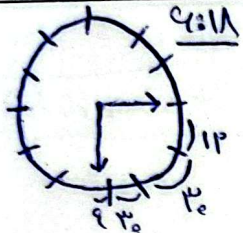
$$1 \times 4 = 4$$

$$27 \div 4 = 27$$

$$30 + 30 + 30 + 30 + 4 + 27 = 151^\circ \quad (\text{الف})$$

$$\alpha = |21.5m - 30h| \Rightarrow |(21.5 \times 4) - (30 \times 3)| = 20.7 \times$$

$$340 - 20.7 = 153^\circ \quad (\text{ب.})$$



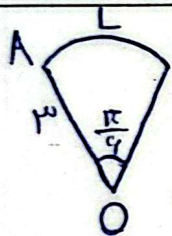
$$11 \div 2 = 9$$

$$2 \times 4 = 12$$

$$30 + 30 + 9 + 12 = 81^\circ \quad (\text{الف})$$

$$\alpha = |21.5m - 30h| \Rightarrow |(21.5 \times 11) - (30 \times 4)| = 81^\circ \quad (\text{ب.})$$

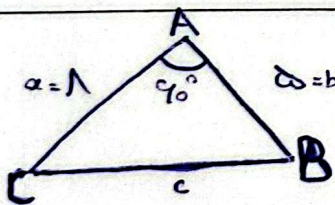
$$340 - 81 = 259 \times$$



$$S = \frac{\alpha}{2} \times R^2 \Rightarrow \frac{\pi}{2} \times 9 = \frac{\pi}{12} \times 9 = \frac{9\pi}{12} = \frac{3\pi}{4}$$

$$L = R \times \alpha \Rightarrow 3 \times \frac{\pi}{4} = \frac{3\pi}{4} = \frac{\pi}{2}$$

$$P = 3 + 3 + \frac{\pi}{2} = 6 + \frac{\pi}{2}$$



$$S = \frac{1}{2} ab \sin \alpha = \frac{1}{2} \times 2 \times 1 \times \sin 90^\circ$$

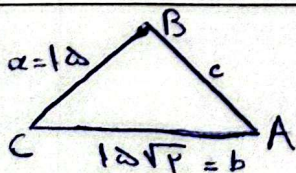
$$= \frac{1}{2} \times 2 \times 1 \times \frac{\sqrt{3}}{2} = \frac{2 \times \sqrt{3}}{2} = 10\sqrt{3}$$

$$c^2 = a^2 + b^2 - 2ab \cos \alpha$$

$$= c^2 = 1^2 + 2^2 - 2 \times 1 \times 2 \times \cos 90^\circ = c^2 = 1 + 4 - 2 \times 1 \times 2 \times \frac{1}{2} = 1 + 4 - 2 = 3$$

$$\Rightarrow c = \sqrt{3} = 1.73$$

$$P = 1 + 2 + 1.73 = 4.73$$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\hat{B} + \hat{C} = 150^\circ$$

$$110 - 150 = 30^\circ = \hat{A}$$

$$\frac{10}{\sin 30^\circ} = \frac{10\sqrt{2}}{\sin B} \Rightarrow \frac{10}{\frac{1}{2}} = \frac{10\sqrt{2}}{\sin B} \Rightarrow \sin B = \frac{10\sqrt{2}}{20} = \frac{\sqrt{2}}{2}$$

$$\Rightarrow B = 45^\circ, c = 150 - 40 = 110$$

$$\frac{\text{Rad}}{\pi} = \frac{D}{110} \Rightarrow \frac{\text{Rad}}{\pi} = \frac{40}{110} \Rightarrow \text{Rad} = \frac{\pi}{2.75} = \hat{B}$$

$$\frac{\text{Rad}}{\pi} = \frac{100}{110} \Rightarrow \frac{\pi}{11} = \hat{C}$$

$$\frac{\tan(\pi - \alpha) + r \tan(\pi + \alpha)}{\tan(r\pi - \alpha) - \tan(r\pi + \alpha)} = \frac{-\tan \alpha + r \tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{r \tan \alpha}{-r \tan \alpha} = (-1)$$

6

$$\alpha = \tan \frac{\pi}{11} = \tan 18^\circ \Rightarrow A = \frac{r \tan 18^\circ + \tan 18^\circ}{r \tan 18^\circ - \tan 18^\circ} \rightarrow \tan 18^\circ = \tan(90^\circ + 18^\circ) = \frac{\tan 90^\circ + \tan 18^\circ}{1 - \tan 90^\circ \tan 18^\circ}$$

$$= \frac{\sqrt{r} + \alpha}{1 - \sqrt{r} \alpha} \Rightarrow \tan 18^\circ = \tan(90^\circ + 18^\circ) = -\cot 18^\circ = -\frac{1}{\alpha}, \tan 18^\circ = -\tan 18^\circ = -\alpha$$

$$\tan 18^\circ = \tan 18^\circ = \frac{\sqrt{r} + \alpha}{1 - \sqrt{r} \alpha} \Rightarrow A = \frac{r \times \frac{\sqrt{r} + \alpha}{1 - \sqrt{r} \alpha} - \frac{1}{\alpha}}{-r \alpha - \frac{\sqrt{r} + \alpha}{1 - \sqrt{r} \alpha}} = \frac{r \alpha^2 + r \sqrt{r} \alpha - 1}{\alpha(r \sqrt{r} \alpha^2 - r \alpha - \sqrt{r})}$$

سوال

7

$$\frac{\sin x + \cos x}{\sin x - \cos x} + \frac{\sin x - \cos x}{\sin x + \cos x} = \frac{(\sin x + \cos x)^2 + (\sin x - \cos x)^2}{(\sin x - \cos x)(\sin x + \cos x)}$$

$$\Rightarrow (\sin x + \cos x)^2 + (\sin x - \cos x)^2 = (\sin^2 x + 2 \sin x \cos x + \cos^2 x) + (\sin^2 x - 2 \sin x \cos x + \cos^2 x)$$

$$= 4(\sin^2 x + \cos^2 x) = 4 \times 1 = 4$$

$$\Rightarrow (\sin x - \cos x)(\sin x + \cos x) = \sin^2 x - \cos^2 x = -(\cos^2 x - \sin^2 x) = -\cos 2x$$

$$\Rightarrow \frac{4}{-\cos 2x} = -\frac{4}{\cos 2x} \Rightarrow \frac{4}{\cos 2x} = 4 \Rightarrow \cos 2x = 1$$

$$\tan^2 x = \frac{1 - \cos 2x}{1 + \cos 2x} \Rightarrow \tan^2 x = \frac{1 - (-\frac{4}{4})}{1 + (-\frac{4}{4})} = \frac{1 + 1}{1 - 1} = \frac{2}{0} = \infty$$

8

$$\frac{\sin^2 x - r \cos^2 x + 1}{\sin^2 x + r \cos^2 x - 1} = f$$

$$\sin^2 x = 1 - \cos^2 x \Rightarrow \sin^2 x - r \cos^2 x + 1 = (1 - \cos^2 x) - r \cos^2 x + 1 = 2 - r \cos^2 x$$

$$\sin^2 x + r \cos^2 x - 1 = (1 - \cos^2 x) + r \cos^2 x - 1 = r \cos^2 x$$

$$\frac{2 - r \cos^2 x}{r \cos^2 x} = f \xrightarrow{\times \cos^2 x} 2 - r \cos^2 x = f \cos^2 x \Rightarrow \cos^2 x = \frac{2}{r + f}$$

$$\tan^2 x = \frac{\sin^2 x}{\cos^2 x} = \frac{1 - \cos^2 x}{\cos^2 x} = \frac{1 - \frac{2}{r + f}}{\frac{2}{r + f}} = \frac{\frac{r + f - 2}{r + f}}{\frac{2}{r + f}} = \frac{r + f - 2}{2}$$

9

$$\cos(211^\circ) \Rightarrow \cos^2 \alpha = \frac{1 + \cos 2\alpha}{2} \rightarrow \cos^2 211^\circ = \frac{1 + \cos 422^\circ}{2}$$

$$\rightarrow \cos 211^\circ = \pm \sqrt{\frac{1 + \frac{\sqrt{r}}{r}}{2}} = \sqrt{\frac{r + \sqrt{r}}{2r}} = \frac{\sqrt{r + \sqrt{r}}}{\sqrt{2r}}$$

$$\sin(211^\circ) \Rightarrow \frac{\sqrt{r + \sqrt{r}}}{\sqrt{2r}} \leftarrow \cos 211^\circ \text{ و } \sin 211^\circ \text{ (من دوازدهم بهم اند)}$$

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