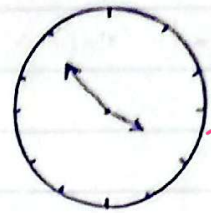


$$\frac{c_0}{52} \mid \frac{30}{x}$$

$$22 \cdot \frac{30 \times 52}{90} = 27$$

$$\alpha = c_1 + c_0 + 27 = 153$$

۳۰۵۲



۱- الف

$$\alpha = |30 \cdot h - \Delta, \Delta m| = |30 \times 3 - \frac{11}{2} \times 52| = |90 - 297| = 207^\circ \Rightarrow 360 - 207 = 153$$

ب

$$\frac{9}{18} \mid \frac{30}{x}$$

$$22 \cdot \frac{30 \times 18}{9} = 4$$

$$\alpha = 4 + 90 + 12 =$$

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۲- الف

$$\alpha = |30 \cdot h - \Delta, \Delta m| = |30 \times 9 - \frac{11}{2} \times 18| = |110 - 99| = 11$$

ب

$$S_{AOB} = \frac{\alpha r^2}{2} \quad \frac{\frac{\pi}{9}}{\frac{2\pi}{1}} \times \pi r^2 = \frac{\pi}{12\pi} \times \pi r^2 = \frac{\pi r^2}{12} \cdot \frac{4\pi}{12} \cdot \frac{3}{2}$$

۳- الف

$$P_{AOB} = \alpha r + 2r \quad \frac{4\pi}{9} + 2 \times 3 = 9 + \frac{4\pi}{9}$$

ب

$$S_{ABC} = S_{\triangle ABC} \times \frac{1}{2} \times AB \times AC \quad \frac{\sqrt{2}}{2} \times \frac{1}{2} \times 5 \times 1 = 1\sqrt{2}$$

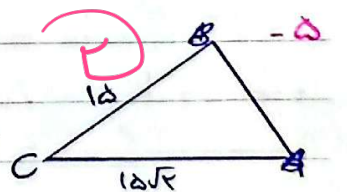
۴- الف

$$P_{ABC} = AB + AC + BC \quad BC = \sqrt{AC^2 + AB^2 - 2AC \times AB \times \cos \alpha} = \sqrt{1^2 + 5^2 - 2 \times 1 \times 5 \times \frac{1}{2}} = \sqrt{42 + 25 - 5} = \sqrt{62} = 7.9$$

ب

$$\hat{B} + \hat{C} = 120^\circ \Rightarrow \hat{A} = 60^\circ \quad \frac{a}{\sin \alpha} = \frac{b}{\sin \beta} \Rightarrow$$

$$\frac{12}{\frac{1}{2}} = \frac{12\sqrt{2}}{\sin \beta} \quad \sin \beta = \frac{\frac{1}{2} \times 12\sqrt{2}}{12} = \frac{\sqrt{2}}{2} \quad \beta = 45^\circ \Rightarrow C = 180 - 45 = 135$$



$$\frac{D_{ar}}{180} = \frac{\pi}{Rad} \quad \frac{45\pi}{180} = Rad \beta = \frac{\pi}{2} \quad \frac{135\pi}{180} = Rad C = \frac{3\pi}{2}$$

$$\frac{\tan(\pi - \alpha) + r \tan(\pi + \alpha)}{\tan(r\pi - \alpha) - \tan(r\pi + \alpha)} = \frac{-\tan(\alpha) + r \tan(\alpha)}{-\tan(\alpha) - \tan(\alpha)} = \frac{r \tan(\alpha)}{-2 \tan(\alpha)} = -\frac{r}{2} = -1 \quad \text{د} \quad -9$$

$$\tan V\Delta = -\tan 1.2\Delta \quad A = \frac{\tan V\Delta + \tan 1.2\Delta + \tan V\Delta}{r \tan V\Delta - \tan V\Delta} = \frac{r \tan(\frac{\pi}{4} - 1\Delta) + \tan(\frac{\pi}{4} + 1\Delta)}{r \tan(\pi - 1\Delta) - \tan(\frac{\pi}{4} - 1\Delta)} = -V$$

$$\tan 19\Delta = \tan 2\Delta$$

$$\tan \frac{\pi}{18} = a \Rightarrow \frac{\pi}{18} = 1\Delta \quad \frac{r \cot(1\Delta) - \cot(1\Delta)}{-r \tan(1\Delta) - \cot(1\Delta)} = \frac{\cot(1\Delta)}{-r \tan(1\Delta) - \cot(1\Delta)} = \frac{\frac{1}{a}}{-r\Delta - \frac{1}{a}} = \frac{\frac{1}{a}}{\frac{-r\Delta - 1}{a}} = \frac{1}{-r\Delta - 1}$$

$$\frac{\sin 2x + \cos 2x}{\sin x - \cos x} + \frac{\sin 2x - \cos 2x}{\sin 2x + \cos 2x} = \left(\frac{\sin 2x + \cos 2x}{\sin 2x - \cos 2x} \right) \left(\frac{\sin 2x + \cos 2x}{\sin 2x + \cos 2x} \right) + \left(\frac{\sin 2x - \cos 2x}{\sin 2x + \cos 2x} \right) \left(\frac{\sin 2x - \cos 2x}{\sin 2x - \cos 2x} \right) = -\Delta$$

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

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

$$\tan^2 x + 1 = r \quad \tan^2 x = r - 1$$

$$\frac{1 - \cos^2 x - r \cos^2 x + 1}{1 - \cos^2 x + r \cos^2 x - 1} = \frac{r - r \cos^2 x}{\cos^2 x} = \frac{r(1 - \cos^2 x)}{\cos^2 x} = r \Rightarrow \cos^2 x = \frac{r}{1+r} \quad \text{د} \quad -9$$

$$1 + \tan^2 x = \frac{1}{\cos^2 x} \Rightarrow \tan^2 x = \frac{1}{\cos^2 x} - 1 = \frac{1 - \cos^2 x}{\cos^2 x} = r \quad \checkmark$$

$$\cos^2 x = \frac{1 + \cos 2x}{2} \Rightarrow \cos^2 \frac{r}{2} = \frac{1 + \cos 2\Delta}{2} \Rightarrow \cos \frac{r}{2} = \frac{\sqrt{1 + \cos 2\Delta}}{\sqrt{2}} = \frac{\sqrt{2 + 2\cos 2\Delta}}{2} \quad \text{د} \quad -10$$

$$\sin^2 x = \frac{1 - \cos 2x}{2} \Rightarrow \sin^2 \frac{r}{2} = \frac{1 - \cos 2\Delta}{2} \Rightarrow \sin \frac{r}{2} = \frac{\sqrt{1 - \cos 2\Delta}}{\sqrt{2}} = \frac{\sqrt{2 - 2\cos 2\Delta}}{2} \quad \text{ب}$$