

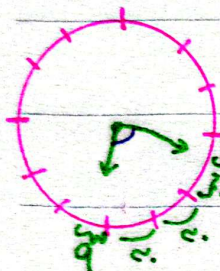
$$120^\circ + 40^\circ + 20^\circ = 180^\circ$$

سوال 1

$$120^\circ \rightarrow 180^\circ - 120^\circ = 60^\circ$$

$$\alpha = |0.8 \times 11 - 0.4 \times 11| = |0.8 \times 11 - 0.4 \times 11| = 2.0 \times 11^\circ$$

$$120^\circ - 20^\circ = 100^\circ$$



$$11^\circ + 40^\circ + 20^\circ = 11^\circ$$

سوال 2

$$\alpha = |0.8 \times 11 - 0.4 \times 11| = |-11| = 11^\circ$$

$$\text{الف) } S_{OAB} = \frac{\alpha}{\pi} R^2 = \frac{\pi}{4} \times \pi^2 = \frac{\pi^3}{4}$$

سوال 3

$$\text{ب) } P_{OAB} = \alpha R + \pi R = \frac{\pi}{4} \times \pi + \pi \times \pi = \frac{12 + \pi}{4}$$

$$\text{الف) } S_{ABC} = \frac{1}{2} \times a \times b \times \sin C = 10\sqrt{2}$$

سوال 4

$$\text{ب) } a^2 = b^2 + c^2 - 2bc(\cos A) \Rightarrow a^2 = 4^2 + 3^2 - 2 \times 4 \times 3 \times \frac{1}{2} = 13 \Rightarrow a = \sqrt{13}$$

$$P_{ABC} = 1 + 2 + 3 = 6$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \Rightarrow \frac{10}{\sin 120^\circ} = \frac{10\sqrt{2}}{\sin B} \Rightarrow \sin B = \frac{\sqrt{2}}{2} \Rightarrow B = 45^\circ$$

سوال 5

$$\Rightarrow C = 180^\circ - (120^\circ + 45^\circ) = 15^\circ \Rightarrow 10 \times \frac{\pi}{180} = \frac{\pi}{12}$$

$$\frac{-\tan \alpha + \tan \alpha}{-\tan \alpha - \tan \alpha} = -1$$

سوال 6

$$\frac{r \tan(90^\circ - \alpha) + \tan(180^\circ - \alpha)}{r \tan(180^\circ - \alpha) - \tan(90^\circ - \alpha)} = \frac{-ra + a}{-ra + a} = \frac{-a}{-ra} = \frac{1}{r}$$

سوال ۷

$$\Rightarrow \tan(\alpha \pm \beta) = \frac{\tan \alpha \pm \tan \beta}{1 \mp \tan \alpha \tan \beta}$$

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

سوال ۸

$$\Rightarrow \frac{\sin^2 n + \cos^2 n + 2 \sin n \cos n + \sin^2 n + \cos^2 n - 2 \sin n \cos n}{\sin^2 n - \cos^2 n} = \frac{r}{\sin^2 n - \cos^2 n} = r$$

$$\Rightarrow r = r(\sin^2 n - \cos^2 n) \Rightarrow \sin^2 n - \cos^2 n = \frac{r}{r} \xrightarrow{\cos n \neq 0} \frac{\sin^2 n}{\cos^2 n} - \frac{\cos^2 n}{\cos^2 n} = \frac{r}{r} \times \frac{1}{\cos^2 n}$$

$$\Rightarrow \tan^2 n - 1 = \frac{r}{r} (1 + \tan^2 n) \Rightarrow r \tan^2 n - r = r + r \tan^2 n \Rightarrow \tan^2 n = 0$$

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

سوال ۹

$$\Rightarrow \frac{r \sin^2 n - 1}{\cos^2 n} = z \Rightarrow z \cos^2 n = r \sin^2 n - 1 \Rightarrow \frac{z \cos^2 n}{\cos^2 n} = \frac{r \sin^2 n - 1}{\cos^2 n}$$

$$\Rightarrow z = r \tan^2 n - \frac{1}{\cos^2 n} \Rightarrow r \tan^2 n - 1 - \tan^2 n = z \Rightarrow \tan^2 n = \frac{z}{r}$$

$$\text{الف) } \cos^2(45^\circ) = \frac{1 + \cos 90^\circ}{2} \Rightarrow \cos(45^\circ) = \pm \sqrt{\frac{1 + \cos 90^\circ}{2}}$$

سوال ۱۰

$$\Rightarrow \cos(45^\circ) = \frac{\sqrt{1+1}}{2} = \frac{\sqrt{2}}{2}$$

$$\text{ب) } \sin^2(45^\circ) = \frac{1 - \cos(90^\circ)}{2} \Rightarrow \sin(45^\circ) = \pm \sqrt{\frac{1 - \cos 90^\circ}{2}}$$

$$\Rightarrow \sin(45^\circ) = \frac{\sqrt{1+1}}{2} = \frac{\sqrt{2}}{2}$$

$$45^\circ \text{ و } 45^\circ = 90^\circ$$