

$$120^\circ + 9^\circ + 27^\circ = 156^\circ$$

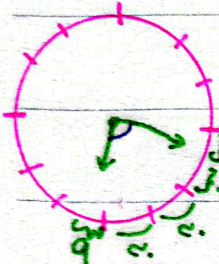
سوال 1

$$27^\circ \rightarrow 52 \div 2 = 27^\circ$$

$$\alpha = |0.8 \text{ M} - 0.4 \text{ h}| \Rightarrow |0.8 \times 0.5 - 0.4 \times 0.5| = 0.1 \text{ V}$$

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

5



$$12^\circ + 4^\circ + 9^\circ = 25^\circ$$

سوال 2

$$\alpha = |0.8 \times 18 - 0.4 \times 9| = |-1.1| = 1.1^\circ$$

9

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

سوال 3

$$\text{ب) } P_{OAB} = \alpha R + 2R = \frac{\pi}{4} \times 4 + 2 \times 4 = \frac{12 + \pi}{4}$$

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

سوال 4

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

$$P_{ABC} = 1 + 2 + \sqrt{13} = 3 + \sqrt{13}$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \Rightarrow \frac{10}{\frac{1}{2}} = \frac{10\sqrt{2}}{\sin B} \Rightarrow \sin B = \frac{1}{\sqrt{2}} \Rightarrow \hat{B} = 45^\circ$$

سوال 5

$$\Rightarrow \hat{C} = 180^\circ - (45^\circ + 45^\circ) = 90^\circ \Rightarrow 10 \times \frac{\pi}{180} = \frac{\pi}{9}$$

5

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

سوال 6

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

$\frac{r \tan(\alpha - \alpha) - \tan(\alpha + \alpha)}{-r \tan(\alpha) - \cot(\alpha)} = \frac{-r\alpha + \alpha}{-r\alpha - \frac{1}{r\alpha}} = \frac{-\alpha}{-\frac{r\alpha^2 + 1}{r\alpha}} = \frac{1}{r\alpha + 1}$

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

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

$(\sin^n + \cos^n)^r + (\sin^n - \cos^n)^r = r$

$(\sin^n - \cos^n)(\sin^n + \cos^n)$

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

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

$\Rightarrow \tan^{rn} - 1 = \frac{r}{r} (1 + \tan^{rn}) \Rightarrow r \tan^{rn} - r = r + r \tan^{rn} \Rightarrow \tan^{rn} = 1$

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

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

$\Rightarrow 2 = r \tan^{rn} - \frac{1}{\cos^{rn}} \Rightarrow r \tan^{rn} - 1 - \tan^{rn} = 2 \Rightarrow \tan^{rn} = \frac{3}{r}$

$\text{الف) } \cos^r(r\alpha, 0) = \frac{1 + \cos^{\frac{r}{2}} \alpha}{r} \Rightarrow \cos(r\alpha) = \frac{1 + \sqrt{1 + \frac{r}{2}}}{r}$

$\Rightarrow \cos(r\alpha) = \frac{1 + \sqrt{1 + \frac{r}{2}}}{r}$

$\text{ب) } \sin^r(r\alpha, 0) = \frac{1 - \cos^{\frac{r}{2}} \alpha}{r} \Rightarrow \sin(r\alpha) = \frac{1 - \sqrt{1 + \frac{r}{2}}}{r}$

$\Rightarrow \sin(r\alpha) = \frac{1 - \sqrt{1 + \frac{r}{2}}}{r}$

$r\alpha \neq 0 \Rightarrow \alpha = 0$