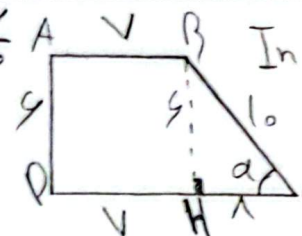


الف) $\frac{2V}{1A_0} = \frac{R_{ad}}{R} \Rightarrow R_{ad} = \frac{2V}{\frac{1}{\sqrt{3}}} R$	ب) $\frac{120}{1A_0} = \frac{R_{ad}}{R} \Rightarrow R_{ad} = \frac{120}{\frac{1}{\sqrt{3}}} R$	۱
ج) $\frac{\frac{120}{\sqrt{3}}}{R} = \frac{D}{1A_0} \Rightarrow D = 120^\circ$	د) $\frac{\frac{120}{\sqrt{3}}}{R} = \frac{D}{1A_0} \Rightarrow D = 120^\circ$	۱
الف) $\frac{120}{R} = \frac{D_1}{1A_0} \Rightarrow \hat{D}_1 = 120^\circ$	ب) $\frac{120}{R} = \frac{D_2}{1A_0} \Rightarrow \hat{D}_2 = 120^\circ$	۲
ج) $\frac{120}{R} = \frac{D_3}{1A_0} \Rightarrow \hat{D}_3 = 120^\circ$	د) $\frac{120}{R} = \frac{D_4}{1A_0} \Rightarrow \hat{D}_4 = 120^\circ$	۲
الف) $(\frac{1}{\sqrt{3}})(\frac{1}{\sqrt{3}}) - (\frac{1}{\sqrt{3}})(\frac{1}{\sqrt{3}}) - 1 + 2 = 1$	ب) $(\frac{1}{\sqrt{3}})^2 + (1)^2 + (\sqrt{3})^2 = \frac{1}{3} + 1 + 3 = \frac{4}{3}$	۳
ج) $(\frac{1}{\sqrt{3}})(\frac{1}{\sqrt{3}}) + (\frac{1}{\sqrt{3}})(\frac{1}{\sqrt{3}}) = \sin^2 \theta \Rightarrow \sin^2 \theta = \frac{1}{3} \Rightarrow \sin \theta = \frac{\sqrt{3}}{3}$	د) $\text{Arcsin} \frac{\sqrt{3}}{3} = 30^\circ \Rightarrow \tan 30^\circ = \frac{\sin 30^\circ}{\cos 30^\circ} = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}}$	۴
الف) $\tan 30^\circ = \cot 60^\circ \Rightarrow \frac{\tan 30^\circ}{(1 - \cot^2 60^\circ)} = \tan \theta \Rightarrow$	ب) $\frac{2(\frac{\sqrt{3}}{3})}{1 - (\frac{\sqrt{3}}{3})^2} = \frac{\frac{2\sqrt{3}}{3}}{\frac{2}{3}} = \sqrt{3} = \tan \theta \Rightarrow \theta = 60^\circ \Rightarrow \frac{60}{1A_0} = \frac{R_{ad}}{R} \Rightarrow$	۵

$$\tan \theta = \frac{\sin \theta}{\cos \theta} = d \Rightarrow \sin \theta = d \cos \theta \Rightarrow$$

$$\frac{r \sin \theta - \cos \theta}{\sin \theta - r \cos \theta} = \frac{r(d \cos \theta) - \cos \theta}{d \cos \theta - r \cos \theta} = \frac{1 \cos \theta}{\cos \theta} = 1 \text{ بلبر } 1$$

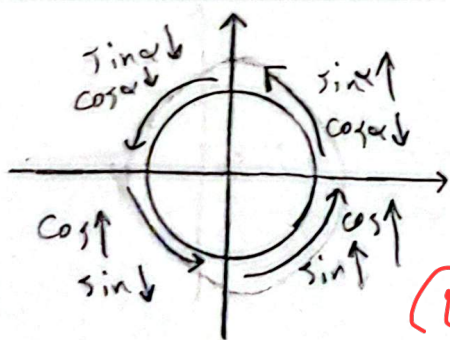
$\sin \alpha = \frac{4}{10}$  In $\triangle BHC$: $\sin \alpha = \frac{BH}{BC} = \frac{4}{10} \Rightarrow BH = 4$
 $BC = 10 \Rightarrow$
 فيثاغورس: $(BH)^2 + (HC)^2 = (BC)^2 \Rightarrow HC = 8 \Rightarrow$

$$P_{ABCD} = 4 + 4 + 8 + 10 = 26$$

$\triangle ABD: \hat{A} + \hat{B} + \hat{D} = 180^\circ \xrightarrow[\hat{B}=90^\circ]{\hat{A}=60^\circ} \hat{D}=30^\circ \Rightarrow \sin 30^\circ = \frac{AB}{AD} = \frac{1}{2} \xrightarrow{AD=10} AB=5$

$\triangle ABC: \hat{A}_1 + \hat{B}_1 + \hat{C}_1 = 180^\circ \Rightarrow \hat{C}_1 = 45^\circ \Rightarrow AB = BC = 5$

$\triangle ABD: \sin 60^\circ = \frac{BD}{AD} \xrightarrow{AD=10} BD = 5\sqrt{3}$ $\Rightarrow DC = BD - BC = 5\sqrt{3} - 5 = 5(\sqrt{3} - 1)$



الف) ناصية ٣٠

ب) ناصية ٦٠

$$1 + \tan^2 \alpha = \frac{1}{\cos^2 \alpha} \Rightarrow 1 + \frac{9}{9} = \frac{1}{\cos^2 \alpha} \Rightarrow \cos^2 \alpha = \frac{9}{10} \Rightarrow$$

$$\cos^2 \alpha + \sin^2 \alpha = 1 \xrightarrow{\cos^2 \alpha = \frac{9}{10}} \sin^2 \alpha = \frac{1}{10} \xrightarrow{\sin \alpha < 0} \sin \alpha = -\frac{\sqrt{10}}{10}$$