

①

$$\text{الف) } \left(\frac{\sqrt{r}-\sqrt{r}}{r} \right) \left(\frac{-\sqrt{r}+\sqrt{r}}{r} \right) = -\frac{1}{2}$$

ب)
$$\frac{1 + \frac{1}{r} \times \frac{1}{r}}{\frac{2}{r} \times \frac{1}{r} + \frac{1}{r} \times \frac{1}{r}} = \frac{1}{r}$$

⑤
$$\sum \sin \theta = \frac{\sqrt{r}}{r} \cdot \frac{1}{r} \cdot \frac{1}{r}$$

الف)
$$AH = \frac{\sqrt{r}}{r} \times \sqrt{r} = \frac{\sqrt{r}}{r}$$

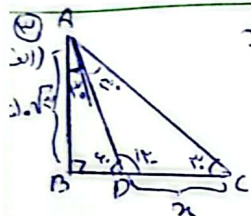
$$(HC)^r = (m\sqrt{r})^r - \left(\frac{\sqrt{r}}{r} \right)^r$$

$$(HC)^r = \frac{1}{r} - \frac{1}{r} \Rightarrow HC = \sqrt{r} = \sqrt{4} = 2$$

ب)
$$\sin \theta = \frac{1}{r} = \frac{AH}{\sqrt{r}} \Rightarrow AH = \sqrt{r}$$

$$\cos \theta = \frac{\sqrt{r}}{r} = \frac{1}{r} \Rightarrow AC = \sqrt{r}$$

$$\sin \beta = \frac{r\sqrt{r}}{r\sqrt{r}} = \frac{1}{r} = \frac{\sqrt{r}}{r} \Rightarrow \beta = \theta$$



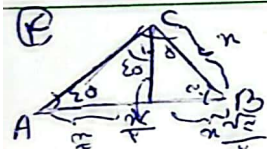
$$\frac{\sqrt{r}}{r} AD = AB \Rightarrow AD = 1$$

$$BD = r \sin \theta = 1 \Rightarrow \theta = 30^\circ$$

ب)
$$\frac{1}{r} \times r = 1 \Rightarrow \theta = 30^\circ$$

$$(\sqrt{r})^r + 1^r = (r)^r \Rightarrow DC = \sqrt{r}$$

$$\sin \alpha = \frac{1}{r} = \frac{\sqrt{r}}{r}$$



$$\frac{\sqrt{r}}{r} AC = \frac{r}{r} \Rightarrow AC = \frac{r}{\sqrt{r}}$$

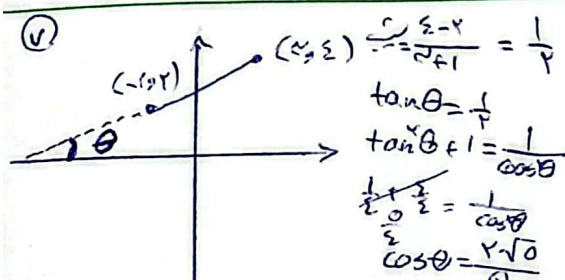
$$\frac{AB}{AC} = \frac{\frac{r}{\sqrt{r}} + r\sqrt{r}}{\frac{r}{\sqrt{r}}} = \frac{\sqrt{r} + r}{r}$$

②
$$\frac{1}{r} \times r \sin \theta = \frac{1}{r} \times r \sin \theta$$

$$\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{r} \times r \times r \times \sin \theta}{\frac{1}{r} \times r \times r \times \sin \theta} = \frac{1}{1} = \frac{1}{1}$$

④ الف)
$$\left(\frac{1}{r} \times r \times r \times \sin \theta \right) = r \sqrt{r}$$

ب)
$$\frac{1}{r} \times r \times r \times \frac{\sqrt{r}}{r} = r \sqrt{r}$$



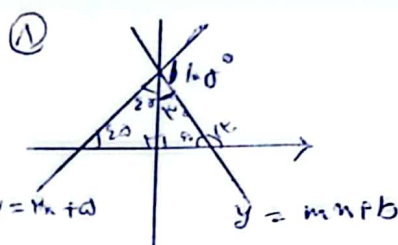
$$\frac{1}{r} \times \frac{1}{r} = \frac{1}{r}$$

$$\tan \theta = \frac{1}{r}$$

$$\tan \theta + 1 = \frac{1}{\cos \theta}$$

$$\frac{1}{r} + \frac{1}{r} = \frac{1}{\cos \theta}$$

$$\cos \theta = \frac{r\sqrt{r}}{2}$$



$$y = m + \frac{a}{r}$$

$$\tan \theta = 1 \Rightarrow \theta = 45^\circ$$

$$\tan \theta = \frac{a}{r}$$

$$m = \sqrt{r}, b = \frac{a}{r}$$

$$\Rightarrow y = \sqrt{r}x + \frac{a}{r}$$

$$mb = \frac{a}{r} \times \sqrt{r} = \frac{a\sqrt{r}}{r}$$

⑨
$$-\cos \alpha + \cos \alpha + \cot \alpha$$

$$\Rightarrow \cot \alpha = \cot \left(\frac{\alpha\pi}{4} \right) = -\frac{\sqrt{r}}{r}$$

⑩
$$\frac{\cos \alpha - \sin \alpha}{-\cos \alpha + \sin \alpha} = \frac{-(-\cos \alpha + \sin \alpha)}{-\cos \alpha + \sin \alpha} = -1$$

لو كان $\theta = 45^\circ$
 $A = \frac{1}{2}$
 $\frac{1}{2} = \frac{1}{2}$