

الف) $(\frac{\sqrt{r}}{r} + \frac{\sqrt{r}}{r})(\frac{\sqrt{r}}{r} + \frac{\sqrt{r}}{r}) = \frac{r}{r} - \frac{r}{r} = -\frac{1}{r}$

①

ب) $1 + \frac{\sin^2 r}{\cos^2 r} = \frac{1 + \frac{r}{r}}{\frac{r}{r} + \frac{r}{r}} = \frac{1 + \frac{r}{r}}{\frac{r}{r} + \frac{r}{r}} = \frac{1}{r} \cdot \frac{1}{r}$

الف) $\frac{\sqrt{r}}{r} \times \sqrt{r} = \sqrt{r} = AH$ $HC = \frac{\sqrt{r}}{r} \times \sqrt{r} = \frac{r}{r}$
 $AH = \frac{1}{r} AC \rightarrow AC = r$

②

ب) $\frac{\sqrt{r}}{r} \times AC = \sqrt{r} \rightarrow AC = r\sqrt{r} \times r = 4\sqrt{r} \rightarrow \frac{1}{r} \times 4\sqrt{r} = 4\sqrt{r} \rightarrow AH \rightarrow \sin 45^\circ = \frac{\sqrt{r}}{r}$
 $r = 40$

$\sin 45^\circ = \frac{AD}{AC} = \frac{\sqrt{r}}{r} \rightarrow AD = \frac{r}{r}$ $\angle A = 45^\circ \rightarrow \angle DAC = 45^\circ$ $\angle A = \angle C \rightarrow AD = DC$
 $r = 40$

③

$\cos 45^\circ = \frac{1}{r} \rightarrow \frac{r}{AC} = \frac{1}{r} \rightarrow AC = r$ $HC = \frac{\sqrt{r}}{r} \times r = \sqrt{r}$
 $\cos 45^\circ = \frac{1}{r} \rightarrow \frac{r}{AC} = \frac{1}{r} \rightarrow \sin 45^\circ = \frac{1}{r} \rightarrow \sin 45^\circ = \frac{1}{r} = \frac{\sqrt{r}}{r}$

$\sin 45^\circ = \frac{1}{r} \times AC \times \sin 45^\circ = \frac{1}{r} \times AC \times \sin 45^\circ = \frac{1}{r} \times AC \times \sin 45^\circ$

④

$AB = r(1 + \sqrt{r})$ $AC = r\sqrt{r}$ $\frac{AB}{AC} = \frac{\sqrt{r} + \sqrt{r}}{r}$

$\frac{S_{ABE}}{S_{ADC}} = \frac{\frac{1}{r} \times \frac{1}{r} \times \sin 45^\circ}{\frac{1}{r} \times \frac{1}{r} \times \sin 45^\circ} = \frac{1}{r}$

$\angle A = \angle B$

الف) $r \times \frac{1}{r} \times \frac{1}{r} \times \sin 45^\circ = 4\sqrt{r}$

⑤

ب) $r \times \frac{1}{r} \times \frac{1}{r} \times \sin 45^\circ = r \times \frac{1}{r} \times \frac{1}{r} \times \sin 45^\circ$
 $\sin 45^\circ = \frac{1}{r} \times \frac{1}{r} \times \sin 45^\circ$
 $r \times \frac{1}{r} = \frac{r}{r} \rightarrow \frac{r}{r} = \frac{r}{r} \times \sin 45^\circ$

$\frac{dz}{dt} = \tan \theta \rightarrow \frac{dz}{dt} = \frac{1}{r} \rightarrow \tan \theta = \frac{1}{r}$

⑥

$\theta \rightarrow \alpha \rightarrow \alpha = \theta \rightarrow \tan \theta = \frac{1}{r} \rightarrow \cos \theta = \frac{r}{\sqrt{r^2 + 1}}$
 $\cos \theta = \frac{r}{\sqrt{r^2 + 1}} \rightarrow \frac{r}{\sqrt{r^2 + 1}}$

$\cos \theta = \frac{r}{\sqrt{r^2 + 1}} \rightarrow \cos \theta = \frac{r}{\sqrt{r^2 + 1}} \rightarrow \frac{r}{\sqrt{r^2 + 1}}$

⑦

$y = km + d \rightarrow y = d/r \rightarrow (d, d/r) \rightarrow b, d/r$
 $y = km + d \rightarrow y = d/r \rightarrow 1 = \tan \alpha \rightarrow \alpha = 45^\circ \times r \rightarrow \alpha = 45^\circ$
 $A = 180^\circ - (45^\circ + 45^\circ) = 90^\circ \rightarrow A = 90^\circ$

$\tan \alpha = \tan 45^\circ = 1$ $m = -\sqrt{r}$ $b, d/r$ $m = \frac{-d\sqrt{r}}{r}$

⑧

$\cos(\theta/4) - \cos(\theta/4) = \sin(\theta/4) - \sin(\theta/4) = \cos(\theta/4) + \sin(\theta/4)$
 $\cos(\theta/4) - \cos(\theta/4) = 0$ $\cos(\theta/4) = \frac{1}{\sqrt{r}}$

⑨

$\cos(m) - \sin(m) = -\cos(m) + \sin(m)$
 $\frac{\sin(\pi/4 + m) + \cos(\pi/4 - m)}{\cos(\pi/4 + m) - \sin(\pi/4 - m)} = \frac{-(\sin m - \cos m)}{\sin m - \cos m} = -1$