

الف) $\sin 135^\circ = (\frac{\pi}{4} + \epsilon^\circ) \rightarrow \cos \epsilon^\circ = \frac{\sqrt{2}}{2}$ $(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2})(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2})$
 $\sin 30^\circ = (\frac{3\pi}{4} + \epsilon^\circ) \rightarrow -\cos \epsilon^\circ = -\frac{\sqrt{3}}{2}$
 $\cos 210^\circ = (\frac{3\pi}{4} + \epsilon^\circ) \rightarrow \sin \epsilon^\circ = \frac{\sqrt{2}}{2}$ $\frac{1}{2} - \frac{\sqrt{3}}{2} = -\frac{1}{2}$
 $\cos 150^\circ = (\frac{3\pi}{4} - \epsilon^\circ) \rightarrow -\cos \epsilon^\circ = -\frac{\sqrt{3}}{2}$

ب) $3 \tan^2 210^\circ = 3 \times \frac{1}{3} = 1$ $2 \cos^2 225^\circ = \frac{2}{2} \times 2 = 1$
 $8 \cos^2 330^\circ = 8 \times \frac{3}{4} = 6$ $\frac{1+1}{3+1} = \frac{1}{2}$

الف) $\frac{\sqrt{2}}{2} \times \sqrt{2} = AH = \sqrt{2}$ $\alpha = 30^\circ \rightarrow \frac{AC}{AH} = \frac{2}{1}$
 $\cos 30^\circ \rightarrow \frac{\sqrt{3}}{2}$ $\frac{\sqrt{3}}{2} \times \sqrt{2} = 3$

ب) $AC = \frac{2}{\sqrt{3}} \times 9 = 6\sqrt{3}$ $AH \rightarrow 3\sqrt{3}$
 $\sin \hat{B} = \frac{AH}{AB} = \frac{3\sqrt{3}}{4\sqrt{2}} = \frac{\sqrt{2}}{2} \rightarrow \epsilon^\circ$

الف) $\overline{AD} = 50\sqrt{x} \times \frac{2}{\sqrt{x}} = 100$ $BD = 50$
 $\frac{50\sqrt{x}}{50 + n} = \tan 30^\circ \rightarrow \frac{1}{\sqrt{3}}$ $150 = 50 + n$ $n = 100$

ب) $\hat{A} = 70^\circ \rightarrow \tan 40^\circ = \sqrt{3} \rightarrow \frac{BC}{AB} \rightarrow BC = 2\sqrt{3}$
 $\hat{C} = 11^\circ$ $DC = 1 + 12$ $DC = \sqrt{13}$ $\sin \alpha = \frac{1}{\sqrt{13}}$

الف) $\frac{\sin \hat{B}}{AC} = \frac{\sin \hat{C}}{AB}$ $\frac{AB}{AC} = \frac{\sin \hat{C}}{\sin \hat{B}} = \frac{?}{\frac{1}{5}} \rightarrow \frac{\sqrt{2} + \sqrt{2}}{\frac{1}{5}}$

$\sin(40^\circ + \epsilon^\circ) = \sin 40^\circ \cos \epsilon^\circ + \cos 40^\circ \sin \epsilon^\circ$
 $\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2}$

$\frac{\frac{1}{5} \sin \hat{B} \times \frac{1}{5} \times AB}{\frac{1}{5} \sin \hat{B} \times \frac{1}{5} \times BD} = \frac{\epsilon}{9}$

ج) $\varepsilon \times 3 \times \sin 14^\circ = \frac{r}{\varepsilon} \times 3, \frac{\sqrt{3}}{r} = 4\sqrt{3}$ ✓

ب) $3 \times \frac{r}{\varepsilon} \times \frac{\sqrt{3}}{r} = 3\sqrt{3}$ ✓ (2)

$\tan \theta \rightarrow$ شیب خط $= \frac{y_2 - y_1}{x_2 - x_1} = \frac{r}{\varepsilon} = \frac{1}{r}$

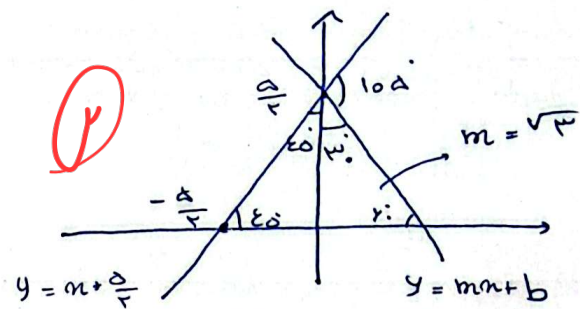
$1 + \tan^2 \theta = \frac{1}{\cos^2 \theta} \quad \frac{a}{\varepsilon} = \frac{1}{\cos^2 \theta} \quad \cos \theta = \frac{r}{\sqrt{a}} \checkmark$
(2)

(b) $y \rightarrow \frac{a}{r}$

$2y = 2m + a \rightarrow y = m + \frac{a}{r}$

$y \rightarrow -\frac{a}{r} + \frac{a}{r} = 0$

$(mb = -\frac{a\sqrt{r}}{r}) \checkmark$



$f(x) = -\cos x + \cos x + \cot x$

$f(\frac{\pi}{2}) = \cot(10^\circ) = -\sqrt{3} \checkmark$ (2)

$\frac{\sin(\frac{1}{r}\pi + m) + \cos(\frac{r}{r}\pi - n)}{\cos(\pi + m) - \sin(2\pi - n)} = \frac{\cos m + (-\sin n)}{-\cos n - (-\sin m)} = -1 \checkmark$
(2)