

سأبدأ بالجزء الأول

(lipin,

11120

1-

الف) $(\sin 135^\circ + \sin 225^\circ)(\cos 135^\circ - \cos 225^\circ)$

$$\frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} \cdot \frac{-\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = \frac{-\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = -1$$

الف) $\frac{1 + \tan^2 110^\circ}{\sec^2 110^\circ + \cos^2 110^\circ}$

$$\frac{1 + \frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}}} = \frac{1 + \frac{1}{\sqrt{2}}}{\frac{2}{\sqrt{2}}} = \frac{1 + \frac{1}{\sqrt{2}}}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

$\tan 110^\circ = \frac{1}{\sqrt{2}}$

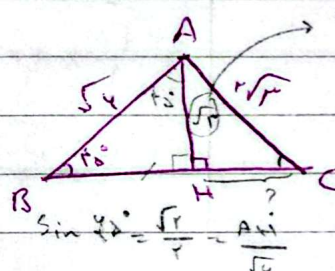
$\cos 110^\circ = \frac{\sqrt{2}}{2}$

$\cos 110^\circ = \frac{-\sqrt{2}}{2}$

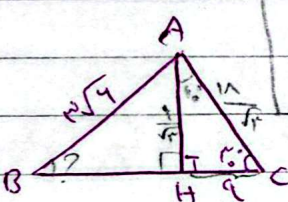
2-

الف)

HC = ?



$\sin 45^\circ = \frac{1}{\sqrt{2}} \rightarrow \angle C = 45^\circ$
 $\cos 45^\circ = \frac{\sqrt{2}}{2} = \frac{HC}{10}$
 $HC = \frac{10 \times \sqrt{2}}{2} = 5\sqrt{2}$



$\cos 45^\circ = \frac{\sqrt{2}}{2} = \frac{9}{AC}$
 $\frac{9 \times \sqrt{2}}{\sqrt{2}} = AC$

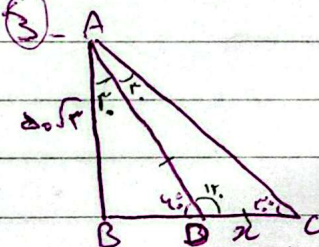
$\sin 45^\circ = \frac{1}{\sqrt{2}} = \frac{AH}{10}$
 $\frac{10}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = AH$

$\sin B = \frac{9}{10\sqrt{2}} = \frac{9 \times \sqrt{2}}{10 \times \sqrt{2}} = \frac{9}{10}$
 $B = 48^\circ$

!- حساب H من

3-

الم = ?

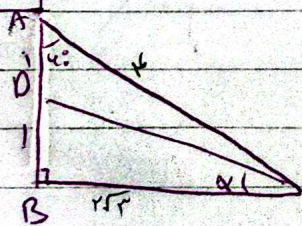


$\sin 45^\circ = \frac{\sqrt{2}}{2} = \frac{5\sqrt{2}}{AD}$
 $AD = \frac{5 \times \sqrt{2}}{\sqrt{2}} = 5$

$\cos 45^\circ = \frac{1}{\sqrt{2}} = \frac{1}{AC}$

$AC = 2$

$1 + BC^2 = 14$
 $BC^2 = 13$
 $BC = \sqrt{13}$



$\sin \alpha = 1$

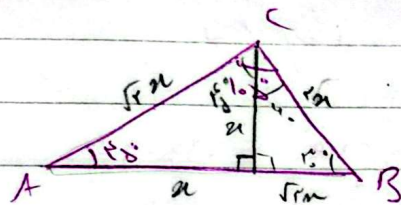
$\sin \alpha = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$1 + (\sqrt{2})^2 = DC^2$
 $1 + 2 = DC^2$
 $DC = \sqrt{3}$



Genobar

④ $\frac{AB}{AC} = ?$

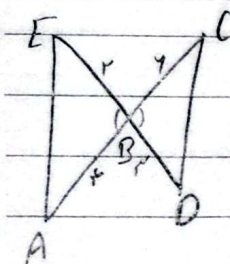


$$\frac{(1+\sqrt{3})\cancel{r} \times \sqrt{r}}{\cancel{r} \times \sqrt{r}} = \frac{\sqrt{r} + \sqrt{3}}{r}$$

5

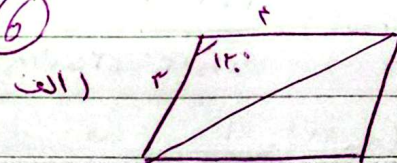
⑤ $\frac{S_{ABE}}{S_{BCD}} = ?$

$S = \frac{1}{2} \times b \times c \times \sin A$ →

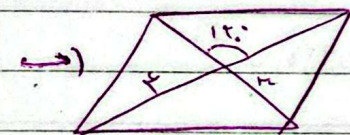


$$\frac{\frac{1}{2} \times r \times r \times \sin 120}{\frac{1}{2} \times r \times r \times \sin 60} = \frac{r}{r}$$

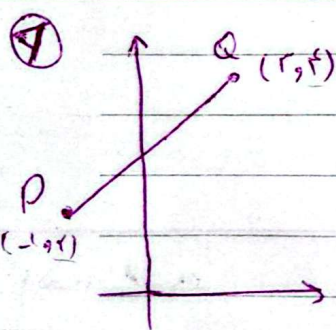
6



$$r \times \frac{1}{2} \times r \times \sin 120 = \frac{r^2 \sqrt{3}}{4}$$



$$\frac{1}{2} \times r \times r \times \sin 60 = \frac{r^2 \sqrt{3}}{4}$$



$\cos \theta = ?$

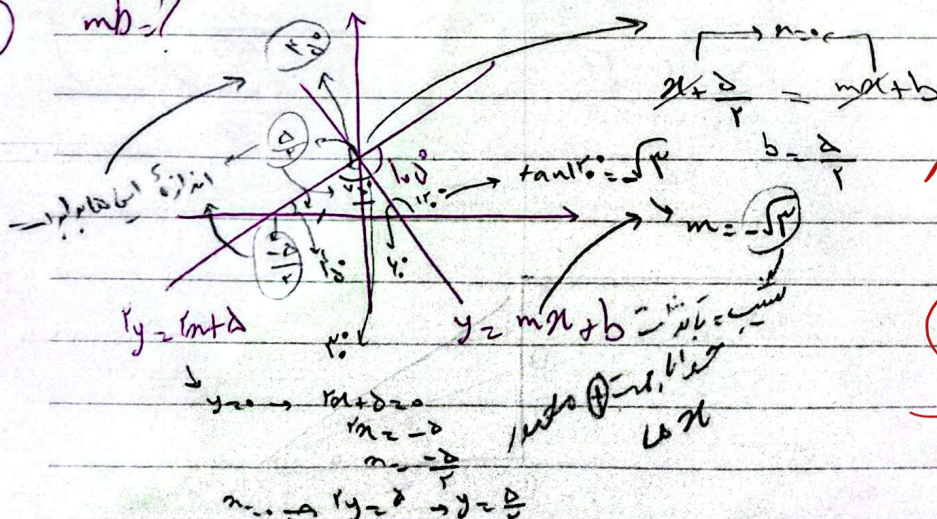
$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{r - 2}{r + 1} = \frac{r}{r} = 1 = \tan \theta$$

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

$$\frac{1}{r} + 1$$

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

⑧ $mb = ?$



$$mb = -\frac{\omega \sqrt{r}}{r}$$

110



$-\cot x$ $-\cos x \quad \cos x$

$$(9) f(x) = \cancel{\cos(\pi+x)} + \cancel{\sin(\frac{\pi}{r}+x)} + \cancel{\sin(\frac{\pi}{r}-x)} - \cancel{\tan(\frac{\pi}{r}+x)}$$

$$-\cancel{\cos x} + \cancel{\cos x} + \cancel{\cos x} + \cot x$$

$$f(\frac{5\pi}{4}) = ?$$

$\rightarrow 120^\circ$

$$\cos 120^\circ + \cot 120^\circ$$

$$-\frac{\sqrt{3}}{2} - \frac{1}{\sqrt{3}} = -\frac{\sqrt{3} + 2}{2}$$

 $\sin \omega$

$$f(x) = \cot x$$

$$f(\frac{5\pi}{4}) = -\frac{\sqrt{3}}{2}$$

$$(10) \sin(\frac{13}{4}\pi + x) + \cos(\frac{13}{4}\pi - x)$$

$$\cos(\pi + x) \rightarrow \sin(4\pi - x)$$

$$+\cos x - \sin x$$

$$\sin(\frac{\pi}{4} + x) + \cos(\frac{\pi}{4} - x)$$

$$= -1$$

$$\cos(\pi + x) \rightarrow \sin(\pi - x)$$

$$-\cos x + \sin x$$