

14, 5

تلف س

هدی بان شری / دهم سر

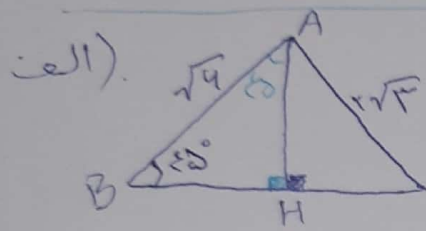
(1, 1.75)

الف). $(\sin 15^\circ + \sin 50^\circ)(\cos 15^\circ - \cos 15^\circ)$

$\left(\frac{\sqrt{2}}{2} + \left(-\frac{\sqrt{5}}{2}\right)\right)\left(\frac{\sqrt{2}}{2} - \left(-\frac{\sqrt{5}}{2}\right)\right) = \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{5}}{2}\right)^2 = \frac{2-5}{2} = -\frac{3}{2}$

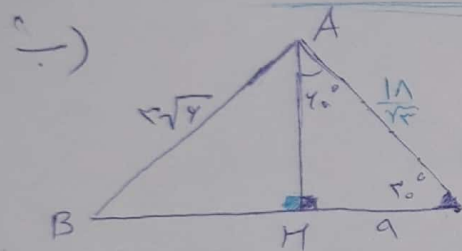
$\left(\frac{\sqrt{2}}{2}\right)^2 - \left(\frac{\sqrt{5}}{2}\right)^2$

ب). $\frac{1 + \tan^2 40^\circ}{\cos^2 40^\circ + \cos^2 40^\circ} = \frac{2}{2\left(\frac{1}{\cos^2 40^\circ}\right)} = \frac{2}{2} = 1$



$AH = \sin 45^\circ = \frac{\sqrt{2}}{2} = \frac{AH}{\sqrt{4}} \rightarrow AH = \frac{\sqrt{2} \times \sqrt{4}}{2} = \frac{\sqrt{4}}{2} = \frac{2}{2} = 1$

$AH = BH = \sqrt{2}$ $AC^2 = AH^2 + HC^2$
 $(2\sqrt{2})^2 = (\sqrt{2})^2 + HC^2 \Rightarrow 8 = 2 + HC^2 \rightarrow HC = \sqrt{6}$



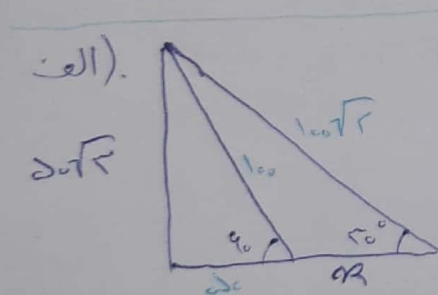
$\cos 40^\circ = \frac{\sqrt{2}}{2} = \frac{9}{AC} \rightarrow AC = \frac{9}{\frac{\sqrt{2}}{2}} = \frac{9\sqrt{2}}{2}$

$\left(\frac{9\sqrt{2}}{2}\right)^2 = 9^2 + AH^2 \rightarrow AC = \frac{11}{\sqrt{2}}$

$10\sqrt{2} = 11 + AH^2 \rightarrow AH = 3\sqrt{2}$

$\angle B = 40^\circ$

$AH^2 + BH^2 = AB^2 \Rightarrow (3\sqrt{2})^2 + BH^2 = 10^2 \Rightarrow 18 + BH^2 = 100 \Rightarrow BH^2 = 82 \Rightarrow BH = \sqrt{82}$



$AD = AD$ $\hat{A}_1 = \hat{C}$

$2\sqrt{5} = \sin 40^\circ \rightarrow \frac{\sqrt{5}}{2} = \frac{AD}{10\sqrt{2}} \rightarrow AD = 10\sqrt{2}$

(2, 1.5)

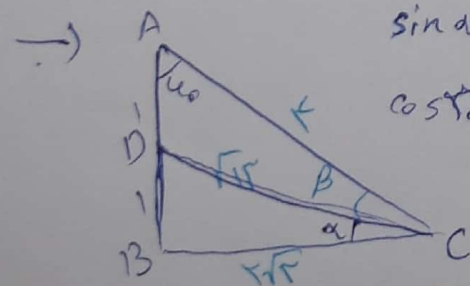
$\sin \alpha = \frac{1}{DC}$ $\sin 40^\circ = \frac{1}{2} \rightarrow \frac{AB}{AC} = \frac{1}{2} \rightarrow AC = 2$

$\cos 40^\circ = \frac{\sqrt{2}}{2} = \frac{BC}{2} \rightarrow BC = \sqrt{2}$

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

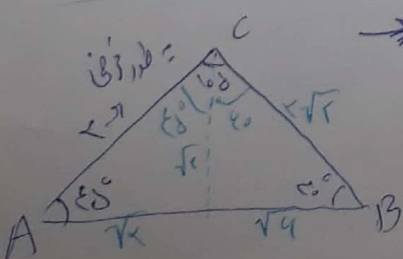
$DC^2 = 1^2 + (\sqrt{2})^2 \rightarrow DC = \sqrt{3}$

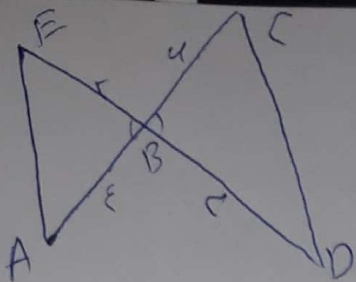
$\rightarrow \sin \alpha = \frac{\sqrt{3}}{2}$



$\frac{AB}{AC} = \frac{\sqrt{2} + \sqrt{2}}{2}$

(2, 1.5)



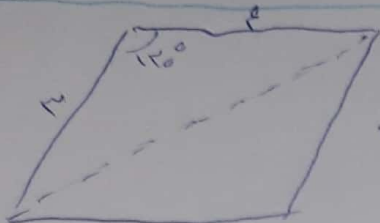


$$\frac{ABE}{BCD} = \frac{\frac{1}{2} \sin \hat{B} \times r \times \epsilon}{\frac{1}{2} \sin \hat{B} \times r \times \epsilon} = \frac{\epsilon}{r} \checkmark$$

$\hat{B} = \hat{B} \rightarrow$ متساوية

(2) (2)

الف)



$$S = \frac{1}{2} r \epsilon \sin 120^\circ = \frac{1}{2} r \epsilon \times \frac{\sqrt{3}}{2}$$

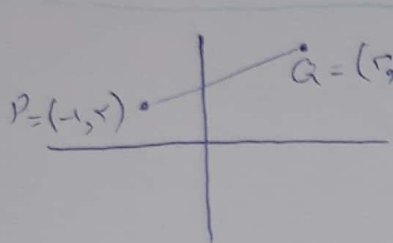
$$= \frac{\sqrt{3}}{4} r \epsilon \times \epsilon = \frac{\sqrt{3}}{4} r \epsilon^2 \checkmark$$



$$S = \frac{1}{2} r \epsilon \sin 120^\circ = \frac{1}{2} r \epsilon \times \frac{\sqrt{3}}{2}$$

$$= \frac{\sqrt{3}}{4} r \epsilon^2 \checkmark$$

(2) (4)



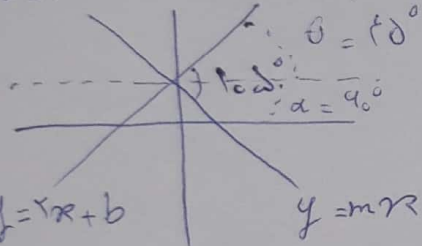
$$\frac{\Delta y}{\Delta x} = \frac{\epsilon - r}{r - (-1)} = \frac{\epsilon - r}{r + 1} = \frac{r}{r} = 1$$

$$\tan \theta = 1$$

$$\cos \theta = \frac{1}{\sqrt{1 + \tan^2 \theta}} = \frac{1}{\sqrt{1 + 1}} = \frac{1}{\sqrt{2}} \checkmark$$

(2) (5)

mb = ?



$$y = r x + d \rightarrow y = x + 1$$

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

$$1 \cdot d - 1 \cdot d = 0$$

$$d = \beta \rightarrow \beta = 45^\circ \rightarrow \tan 45^\circ = 1 = \sqrt{r} \text{ ! يجب مقلد }$$

(2) (6)

$$y = r x + b$$

$$y = m x + b$$

$$m b = r, d \sqrt{r} \checkmark$$

$$1 \cdot d = \sqrt{r} (1) + b \rightarrow b = r, d$$

$$f(x) = \cos\left(\frac{\pi}{2} + x\right) + \sin\left(\frac{\pi}{2} - x\right) - \tan\left(\frac{\pi}{2} + x\right) = -\cos x + \cos x + (\cot x) = \cot x$$

$$f\left(\frac{\Delta \pi}{4}\right) = ? \rightarrow f(120^\circ) = \cot 120^\circ = -\frac{1}{\sqrt{3}} \checkmark$$

(2) (9)

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

$$= \cos x - \sin x$$

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

$$= -\cos x + \sin x \rightarrow$$

$$\rightarrow \frac{\cos x - \sin x}{-(\cos x - \sin x)} = (-1) \checkmark$$

(2) (10)