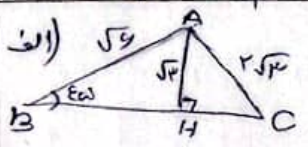


نام و نام خانوادگی: امیرحسین (موجودی) پاسخنامه تشریحی تکلیف شماره ۲۰۰ کلاس دهم ریاضی

الف)
$$\frac{(\sin 135^\circ + \sin 100^\circ)(\cos 135^\circ + \cos 100^\circ)}{(\frac{\sqrt{2}}{2} + \frac{-\sqrt{2}}{2})(\frac{\sqrt{2}}{2} + (\frac{-\sqrt{2}}{2}))} = \frac{\sqrt{2} - \sqrt{2}}{2} \times \frac{\sqrt{2} + \sqrt{2}}{2} = \frac{-1}{2} \checkmark$$

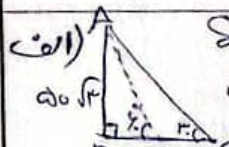
$$\Rightarrow \frac{1 + 3 \tan 210^\circ}{\frac{\cos 30^\circ}{3} + \frac{2 \cos 210^\circ}{1}} = \frac{1 + 1}{3 + 1} = \frac{2}{4} = \frac{1}{2} \checkmark$$

الف) 
$$\sin 45^\circ = \frac{\sqrt{2}}{2} = \frac{AH}{\sqrt{2}} \rightarrow AH = \frac{\sqrt{2}}{2} \times \sqrt{2} = 1 \rightarrow HC = \sqrt{2^2 - 1^2} = \sqrt{3}$$

$$HC = \sqrt{3} \checkmark$$
 $\leftarrow$ چون ضلع همیشه مثبت است $\rightarrow x = \pm 3$

$$\tan 30^\circ = \frac{\sqrt{3}}{3} \rightarrow \frac{AH}{9} = \frac{\sqrt{3}}{3} \rightarrow HA = 3\sqrt{3}$$

$$\sin B = \frac{3\sqrt{3}}{6\sqrt{3}} = \frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{2} = \sin 60^\circ \checkmark$$

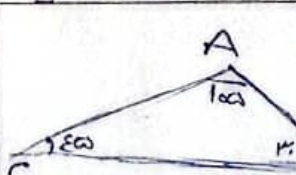
الف) 
$$\sin 45^\circ = \frac{\sqrt{2}}{2} = \frac{AD}{50\sqrt{2}} \rightarrow AD = 100$$

$$BD + (50\sqrt{2}) = 100 \rightarrow BD = 50 \rightarrow BC = 50 + x$$

$$\tan 45^\circ = \frac{50\sqrt{2}}{50 + x} = \frac{\sqrt{2}}{2} \rightarrow x = 100 \checkmark$$

$$\tan 20^\circ = \frac{\sqrt{2}}{2} = \frac{2}{BC} \rightarrow 9 = BC\sqrt{2} \rightarrow BC = \frac{9}{\sqrt{2}} = \frac{9\sqrt{2}}{2}$$

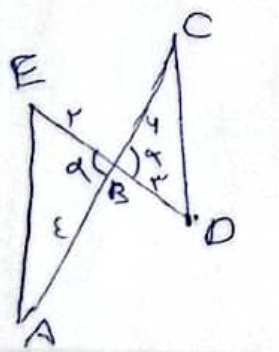
$$DC = \sqrt{13} \rightarrow \sin \alpha = \frac{1}{\sqrt{13}} = \frac{\sqrt{13}}{13} \checkmark$$

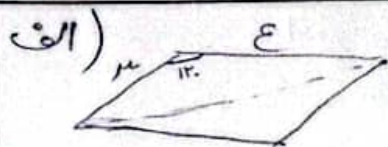

$$\hat{B} = 100^\circ + 40^\circ = 140^\circ \quad 180^\circ - 140^\circ = 40^\circ$$

$$\sin 100^\circ = \sin(40^\circ + 60^\circ) = \frac{\sqrt{2}}{2} \times \frac{1}{2} + \frac{\sqrt{2}}{2} \times \frac{\sqrt{3}}{2}$$

$$\frac{\sqrt{2}}{2} + \frac{\sqrt{6}}{2} \rightarrow \sin 100^\circ = \frac{\sqrt{2} + \sqrt{6}}{2}$$

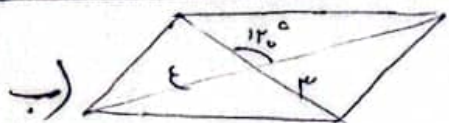
$$\frac{AB}{\frac{\sqrt{2} + \sqrt{6}}{2}} = \frac{AC}{\frac{1}{2}} \rightarrow \frac{AB}{AC} = \frac{\sqrt{2} + \sqrt{6}}{1} = \frac{\sqrt{2} + \sqrt{6}}{1} \checkmark$$


$$\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{2} \times 4 \times 3 \times \sin 120^\circ}{\frac{1}{2} \times 4 \times 3 \times \sin 60^\circ} = \frac{6}{6} = 1 \checkmark$$



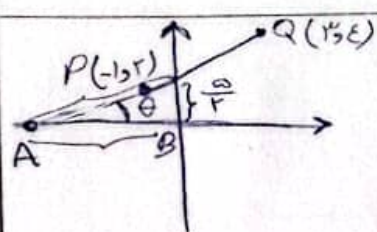
$$S = r \times E \times \sin 110^\circ = r \times E \times \frac{\sqrt{r}}{r} = \sqrt{r} \quad \checkmark$$

(2)



$$S = \frac{1}{r} \times a \times b \times \sin \alpha \rightarrow S = \frac{1}{r} \times a \times b \times \sin 110^\circ$$

$$\frac{1}{r} \times E \times r \times \frac{\sqrt{r}}{r} = \sqrt{r} \quad \checkmark$$



$$\tan(\theta) = \frac{y_2 - y_1}{x_2 - x_1} = \frac{E - r}{r + 1} = \frac{1}{r}$$

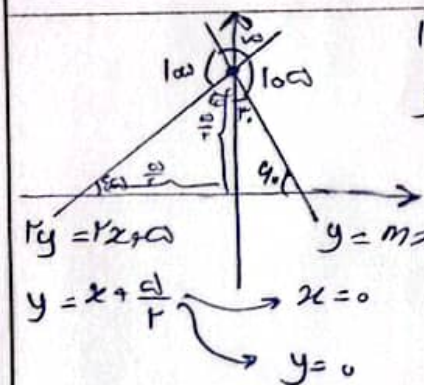
$$y = mx + b \rightarrow E = r m + b \rightarrow m = \frac{1}{r}$$

$$E = \frac{1}{r} \times r + b \rightarrow b = \frac{a}{r} \quad \text{و } \cos \theta = \frac{1}{r} \rightarrow y = \frac{1}{r} x + \frac{a}{r}$$

$$\overline{AB} = r \rightarrow y = 0 \rightarrow x = r a \rightarrow \text{تسمى البعد } r$$

$$\omega^r + \left(\frac{a}{r}\right)^r = x^r \rightarrow x = \frac{\omega \sqrt{a}}{r} \rightarrow \cos \theta = \frac{\omega}{\omega \sqrt{a}} = \frac{\sqrt{a}}{a} \quad \checkmark$$

(2)



$$10\omega \times r = 110 \quad \frac{r \times 10 - 110}{r} = \omega$$

$$y = mx + b \Rightarrow b = \frac{a}{r}$$

$$m = \tan 110^\circ = -\sqrt{r}$$

$$110 - 10 = 100$$

$$m \times b = \frac{a}{r} \times (-\sqrt{r}) = \frac{-a \sqrt{r}}{r} \quad \checkmark$$

(2)

$$F(x) = \cos(\pi + x) + \sin\left(\frac{\pi}{r} - x\right) - \tan\left(\frac{r}{r} x + x\right)$$

$$F\left(\frac{\pi}{r}\right) \Rightarrow \cos x + \sin x - (-\cos x)$$

$$\frac{\sqrt{r}}{r} + \left(-\frac{\sqrt{r}}{r}\right) - \sqrt{r} = -\sqrt{r} \quad \checkmark$$

(2)

$$\sin\left(\frac{\sqrt{r}}{r} x + x\right) + \cos\left(\frac{\sqrt{r}}{r} x - x\right)$$

$$\cos(r x + x) - \sin(4 x - x)$$

$$\frac{\cos x - \sin x}{\sin\left(\frac{\pi}{r} + x\right) + \cos\left(\frac{\sqrt{r}}{r} x - x\right)}$$

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

$$\frac{-\cos x + \sin x}{-\cos x + \sin x} = -1 \quad \checkmark$$

(2)