نام و نام خانوادگی ....سپهر مجد رزاده...... پاسخنامه تشریحی تکلیف شماره ..۱۱.. کلاس ....B....

۱۲

$ED = 2AE$ ⇒ $AE = \frac{5}{3}$

$AE + 2AE = 5$ $ED = \frac{25}{3}$

$A = (0, 0)$ $C = (5, 5)$ $E = (\frac{5}{3}, 0)$

$D = (5, 0)$ $B = (0, 5)$

معادله خط A ← $y = x$

معادله خط BE ← $y = 5 - 3x$

$y_F = x = 5 - 3x \Rightarrow x = \frac{5}{4}, y = \frac{5}{4}$

طول AF → $(0, 0)$ تا $(\frac{5}{4}, \frac{5}{4})$ → $\frac{5\sqrt{2}}{4}$

طول EF → $(\frac{5}{3}, 0)$ تا $(\frac{5}{4}, \frac{5}{4})$ → $\frac{5\sqrt{10}}{12}$

$\frac{\frac{5\sqrt{10}}{12}}{\frac{5\sqrt{2}}{4}} = \frac{\sqrt{5}}{3}$ ۱ (۲)

$AED \sim ABC$

$\frac{AE}{AC} = \frac{AD}{AB}$

$\frac{x}{15} = \frac{2}{x+1}$ → $x^2 + x = 30$

$x = -6$ و 5 ۲ (۲)

$DE \parallel BC$ $\xrightarrow{\text{جزء به کل}}$ $\frac{AE}{AC} = \frac{DE}{BC}$ → $\frac{x}{3x} = \frac{DE}{BC}$ → $BC = 3DE$

$1/2y = 2x$

$\hat{D} = \hat{C}$, $\hat{E} = \hat{F}$ → $\overset{\triangle}{DHE} \sim \overset{\triangle}{CHF}$ → $\frac{EH}{FH} = \frac{DE}{CF}$ → $CF = \frac{5}{3}DE$

y ← $\frac{5}{3}x$

$BC = BF + FC$ → $3DE = 3 + \frac{5}{3}DE$ → $DE = \frac{9}{4}$ $BC = \frac{27}{4}$ ۳ (۰)

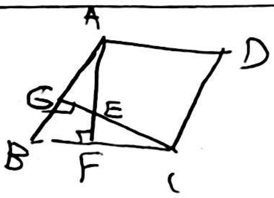
$a^2 + b^2 = c^2 = 400$

$h = \frac{ab}{c}$

4 ← $BH = \frac{a^2}{c}$ ($\sqrt{80}$, 20) $CH = \frac{b^2}{c}$

$b^2 = 400 - a^2 = 400 - 80$ ⇒ $b = 8\sqrt{5}$

$\frac{b}{a} = \frac{8\sqrt{5}}{\sqrt{80}} = 2$ ($4\sqrt{5}$) ۴ (۲)



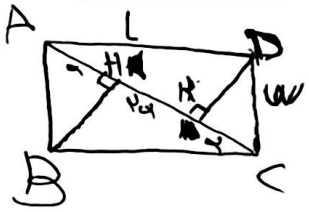
$FC = 8$ ($14 - 6 = 8$)

$AE + EF = 8 + 4 = 12$

$BGC \sim ABF \sim CEF$

$\frac{EF}{BF} = \frac{FC}{AF}$ $\frac{EF}{6} = \frac{8}{8 + EF}$

$x^2 + 8x = 48$ $x = -12$ و 4 ۵ (۲)



$S_{ADK} = \frac{1}{2} AK \times DK = \frac{1}{2} a \times a\sqrt{2} = \frac{a^2\sqrt{2}}{2}$

$S_{\text{مستطیل}} : LW = 2a \times 2a\sqrt{2} = 4a^2\sqrt{2}$

$\frac{4a^2\sqrt{2}}{\frac{\sqrt{2}}{2}a} = 4$ ✓

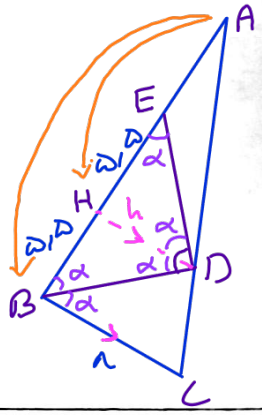
$ADK \sim ABC$

$AK = \frac{AD^2}{AC} \Rightarrow a = \frac{L^2}{4a} \Rightarrow L = 2a\sqrt{2}$

$ABH \sim ABC$

$a = \frac{W^2}{4a} \Rightarrow W = 2a$

جواب ۷



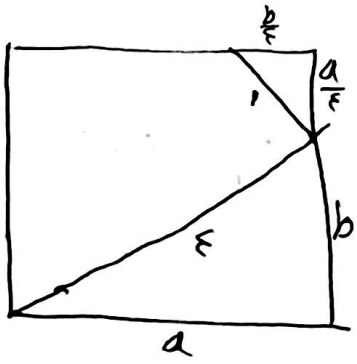
$h^2 = 0.5 \times 0.5 \rightarrow h = 0.5$

تالس $= \frac{x + 0.5}{11 + x} = \frac{0.5}{1}$ $\rightarrow$ $x = \frac{3}{2}$

$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{2} AB \times BC \times \sin B}{\frac{1}{2} BM \times BN \times \sin B} = 3 \rightarrow \frac{AB}{BM} = \frac{9}{5}$

$\frac{AB - BM}{BM} = \frac{9-5}{5} = \frac{4}{5}$

$\frac{BM}{AM} = \frac{5}{4}$



$b + \frac{a}{4} = a$

$a = \frac{4}{3}b$, $a^2 + b^2 = 14$ $\Rightarrow$ $\frac{16}{9}b^2 + b^2 = \frac{25}{9}b^2 = 14$

$\sigma = \frac{14}{5}$, $a^2 = \frac{784}{25}$ ✓

$\frac{5}{3}b = 4$, $b = \frac{12}{5}$

محل برخورد میانه‌ها G $\rightarrow$ $BG = 2m$ $GD = m \rightarrow BD = 3m$

از A به G وصل کنیم، AE و GD میانه‌های مثلث AGC می‌شوند:

$GF = \frac{2}{3}m$

$FD = \frac{1}{3}m$

$\rightarrow \frac{BD}{FD} = \frac{3m}{\frac{1}{3}m} = 9$