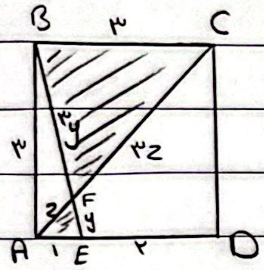
Subject: ریاضی یازدهم تجربی A Date: / /

①



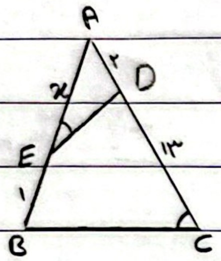
$ED = 2AE \qquad \frac{EF}{AF} = ?$

$\frac{BF}{FE} = \frac{CF}{AF} = 3 \Rightarrow \begin{cases} BF = 3y , FE = y \\ CF = 3z , AF = z \end{cases}$

$B\hat{A}E : (4y)^2 = 3^2 + 1^2 \Rightarrow 16y^2 = 10 \Rightarrow y = \frac{\sqrt{10}}{4} \qquad AC = 3\times\sqrt{2} \Rightarrow 4z = 3\sqrt{2} \Rightarrow z = \frac{3\sqrt{2}}{4}$

$\Rightarrow \frac{y}{z} = \frac{\frac{\sqrt{10}}{4}}{\frac{3\sqrt{2}}{4}} = \frac{\sqrt{10}}{3\sqrt{2}} = \boxed{\frac{\sqrt{5}}{3} = \frac{EF}{AF}}$

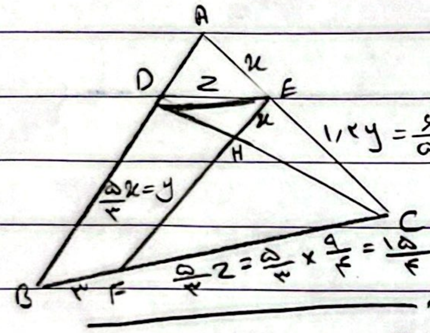
②



$\frac{AD}{AB} = \frac{AE}{AC} \Rightarrow \frac{2}{x+1} = \frac{x}{15} \Rightarrow 30 = x^2 + x \Rightarrow x^2 + x - 30 = 0$

$\Rightarrow (x+6)(x-5) = 0 \Rightarrow \begin{cases} x = -6 \to \text{غ ق ق} \\ \boxed{x = 5} \to \text{ق ق} \end{cases}$

③



$1/2y = \frac{6}{5} \times \frac{5}{3}x = 2x$

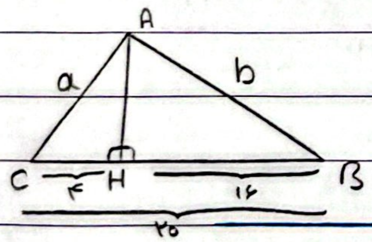
$\frac{x}{3x} = \frac{z}{\frac{5}{3}z+3} \Rightarrow 3z = \frac{5}{3}z + 3$

$\Rightarrow \frac{4z}{3} = 3 \Rightarrow z = \frac{9}{4}$

$\frac{5}{3}z = \frac{5}{3} \times \frac{9}{4} = \frac{15}{4} = 3/75$

$3 + 3/75 = \boxed{6/75}$

④

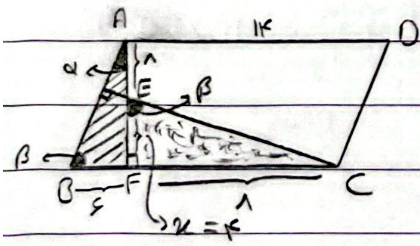


$b^2 = 16 \times 20$

$a^2 = 4 \times 20$

$\xrightarrow{\div} \frac{16 \times 20}{4 \times 20} = \frac{b^2}{a^2} \xrightarrow{\text{جذر}} \frac{b}{a} = \boxed{2}$

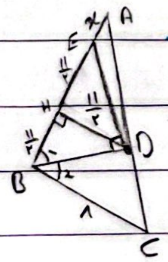
⑤



$\frac{x}{4} = \frac{8}{x+8} \Rightarrow x^2 + 8x - 48 = 0 \Rightarrow (x+12)(x-4) = 0 \Rightarrow \begin{cases} x = 4 \to ✓ \\ x = -12 \to ✗ \end{cases}$

$AE + EF = AF \Rightarrow 8 + 4 = \boxed{12}$

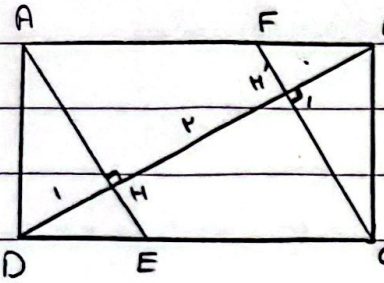
⑥



$\hat{B}_1 = \hat{B}_2 = 45^\circ \qquad DH = BH = EH = \frac{11}{2} \qquad \frac{AH}{AB} = \frac{DH}{BC} \Rightarrow \frac{x + \frac{11}{2}}{x+11} = \frac{\frac{11}{2}}{8}$

$\Rightarrow \boxed{x = 6/6}$

s.a.m



$AH^2 = 1 \times 3 \Rightarrow AH = \sqrt{3}$ ⑦

$AD^2 = (\sqrt{3})^2 + 1^2 = 4 \Rightarrow AD = 2$

$4^2 = 2^2 + AB^2 \Rightarrow AB = 2\sqrt{3}$

$\frac{AH}{HE} = \frac{AB}{DE} = \frac{BH}{DH} \Rightarrow \frac{\sqrt{3}}{HE} = \frac{2\sqrt{3}}{DE} = \frac{3}{1} \Rightarrow HE = \frac{\sqrt{3}}{2}$

$\Rightarrow \frac{S_{\square}}{S_{\Delta min}} = \frac{2\sqrt{3} \times 2}{\frac{1}{2} \times \frac{\sqrt{3}}{2} \times 1} = \frac{4\sqrt{3}}{\frac{\sqrt{3}}{4}} = 24$

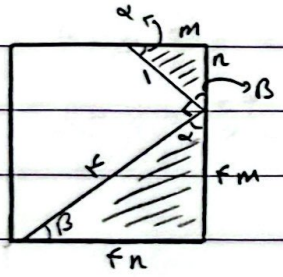
$2BN = 3NC \Rightarrow \frac{BN}{BC} = \frac{3}{5}$ ①

$\frac{S_{BMN}}{S_{ABC}} = \frac{BM}{BA} \times \frac{BN}{BC}$

$\frac{S_{ABC}}{S_{ABC}} = \frac{1}{3}$

$\Rightarrow \frac{1}{3} = \frac{BM}{BA} \times \frac{3}{5} \Rightarrow \frac{BM}{BA} = \frac{5}{9}$

$\frac{AM}{BA} = 1 - \frac{5}{9} = \frac{4}{9}$ $\quad \frac{BM}{AM} = \frac{\frac{5}{9}}{\frac{4}{9}} = \frac{5}{4} \Rightarrow \frac{BM}{AM} = \frac{5}{4}$



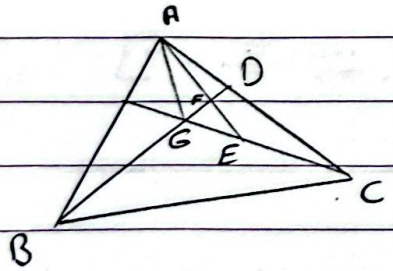
⑨

$4m + n = 4n \Rightarrow 4m = 3n$

$(4n)^2 + (4m)^2 = 4^2 \Rightarrow m^2 + n^2 = 1 \xrightarrow{m = \frac{3n}{4}} (\frac{3n}{4})^2 + n^2 = 1$

$\Rightarrow \frac{9n^2}{16} + n^2 = 1 \Rightarrow \frac{25n^2}{16} = 1 \Rightarrow n^2 = \frac{16}{25}$

$S = (4n)^2 = 16n^2 \Rightarrow S = 16 \times \frac{16}{25} = 10.24$



⑩

$AG = 2GM = \frac{2}{3}AM$

$GM = \frac{1}{2}AG = \frac{1}{3}AM$

$GD = \frac{1}{3}BD$ (1)

$FD = \frac{1}{2}GD \xrightarrow{(1)} FD = \frac{1}{2} \times \frac{1}{3} BD \Rightarrow 6FD = BD$

$\Rightarrow \frac{BD}{FD} = 6$