نام و نام خانوادگی نیایش امانی...................... پاسخنامه تشریحی تکلیف شماره ..۲.. کلاس یازدهم تجربی B..........

۱

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

$\frac{AE}{BC} = \frac{EF}{FB} = \frac{AF}{FC} = \frac{1}{2}$

$\Rightarrow \frac{EF}{FB+EF} = \frac{AF}{FC+AF} = \frac{1}{3}$

$FB+EF = \sqrt{10} \qquad 3\sqrt{2} = a\sqrt{2}$

$\Rightarrow \frac{EF}{\sqrt{10}} = \frac{AF}{3\sqrt{2}} = \frac{1}{3}$

$\frac{EF}{AF} = \frac{\frac{\sqrt{10}}{3}}{\sqrt{2}} = \frac{\sqrt{10}}{3\sqrt{2}}$

۲

$\frac{x}{2+13} = \frac{2}{x+1} \Rightarrow x^2 + x = 30 \Rightarrow x(x+1) = 30 \Rightarrow x = 5$

۳

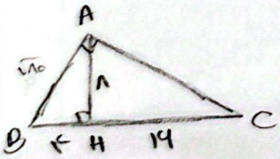
$DE \parallel BC \qquad 3y = 5x \qquad BF = 3 \qquad BC = ? \qquad \Rightarrow y = \frac{5}{3}x$

$ADE \sim ABC \Rightarrow \frac{AE}{AC} = \frac{DE}{BC} \Rightarrow \frac{x}{3x} = \frac{DE}{BC} = \frac{1}{3} \Rightarrow BC = 3DE \Rightarrow BC = 9$

$AC = x + 1.2y = x + 1.2\left(\frac{5}{3}x\right) = 3x$

$\frac{DE}{BC} = \frac{3}{BC} \Rightarrow DE = 3$

۴

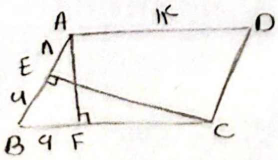


$AH^2 = BH \times HC = 64 \Rightarrow AH = 8$

$A\hat{B}H \sim A\hat{B}C \Rightarrow \frac{AB}{AC} = \frac{BH}{AH} = \frac{4}{8} = \frac{1}{2}$

۵

$AD = 14 \qquad BF = 6 \qquad AE = 8 \qquad AF = ?$



$A\hat{B}F \sim B\hat{E}C$

$\frac{AB}{BC} = \frac{BF}{EB} = \frac{AF}{EC} \Rightarrow \frac{8+EB}{14} = \frac{6}{EB} \Rightarrow EB^2 + 8EB = 84$

$EB^2 + 8EB - 84 = 0$

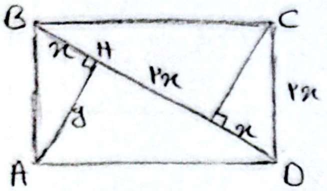
$(EB-6)(EB+14) = 0$

$EB = 6$

$AB^2 = AF^2 + BF^2 \Rightarrow 14^2 = AF^2 + 36$

$\Rightarrow 196 - 36 = AF^2 \Rightarrow AF = \sqrt{160} = 4\sqrt{10}$

۶



$$\frac{S_{ABCD}}{S_{BHA}} = \frac{2x \times 2\sqrt{3}x}{\frac{x \times \sqrt{3}x}{2}} = 8$$

$y^2 = 3x \times x \Rightarrow y = \sqrt{3}x$

$BA^2 = x^2 + 3x^2 = 4x^2 \Rightarrow BA = 2x$

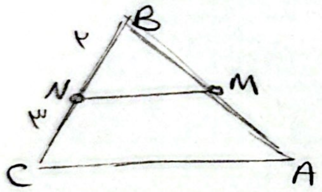
$AD^2 = 3x^2 + 9x^2 = 12x^2 \Rightarrow AD = \sqrt{12}x = 2\sqrt{3}x$ ۷

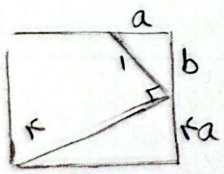
$2BN = 3NC$

$$\frac{S_{ABC}}{S_{BNM}} = \frac{\frac{1}{2} AB \times BC \times \sin B}{\frac{1}{2} BM \times BN \times \sin B} = 3$$

$$\frac{BM}{BA} \times \frac{BN}{BC} = \frac{1}{3} \Rightarrow \frac{BM}{BA} = \frac{5}{9}$$ ۸

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





$4a + b = 4b \Rightarrow a = \frac{3}{4}b$

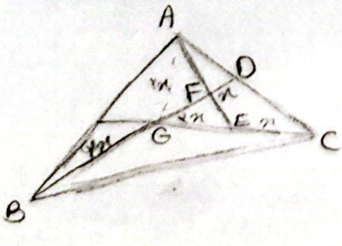
$(\frac{3}{4}b)^2 + b^2 = 1 \Rightarrow b^2 = \frac{1}{\frac{25}{16}} = \frac{16}{25} \Rightarrow b = \frac{4}{5}$ ۹

$4b = \frac{16}{5}$

مربع $S = (\frac{16}{5})^2 = \frac{256}{25} = 10.24$

$GE = EC$ $\quad \frac{BD}{FD} = ?$ $\quad \frac{9x}{x} = 9$

میانه به نسبت ۱ به ۲ همدیگر را قطع می‌کنند.



۱۰