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نام و نام خانوادگی ...صبا ادهم... پاسخنامه تشریحی تکلیف شماره ...۲۱... کلاس ...یازدهم ۳ ریاضی...

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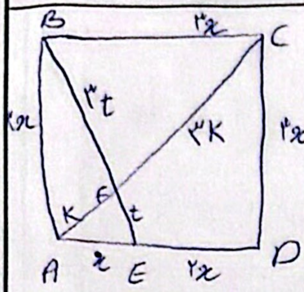

$BE^2 = x^2+(3x)^2 \to BE=\sqrt{10}\,x$

$AC^2 = (3x)^2+(3x)^2 = \sqrt{18}\,x$

$\frac{t}{k} = \frac{BE}{AC} = \frac{4t}{4k} = \frac{\sqrt{10x^2}}{\sqrt{18x^2}} = \sqrt{\frac{10}{18}} = \boxed{\frac{\sqrt{5}}{3}}$

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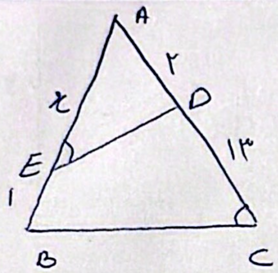

$\overset{\triangle}{ADE} \sim \overset{\triangle}{ABC} \longrightarrow \frac{2}{x+1} = \frac{x}{15} \longrightarrow \begin{cases} x_1 = 5 \\ x_2 = -6 \text{ غ ق ق} \end{cases}$

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

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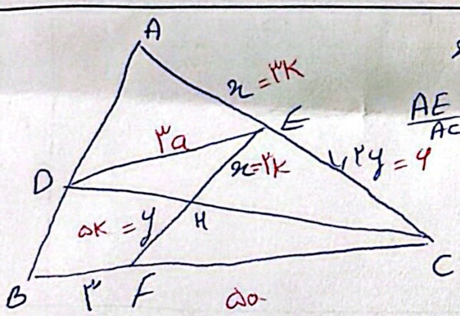

$x=3k \quad y=5k$

$\frac{AE}{AC} = \frac{DE}{BC} = \frac{3a}{3+5a} = \frac{3k}{9k} = \frac{1}{3} \to a = \frac{3}{4}$

$BC = 3 + 5\times\frac{3}{4} = \frac{15}{4}+3 = \frac{27}{4} = \boxed{6.75}$

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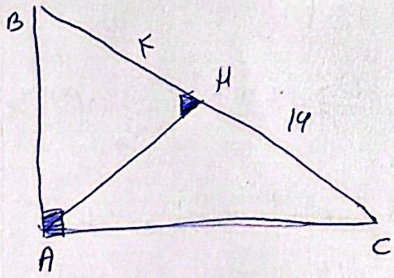

$AB^2 = BH\times BC \longrightarrow 4\times 20 = AB^2$

$AC^2 = CH\times BC \longrightarrow 16\times 20 = AC^2$

$\frac{AC^2}{AB^2} = \frac{16\times 20}{4\times 20} = 4 \longrightarrow \frac{AC}{AB} = \sqrt{4} = \boxed{2}$

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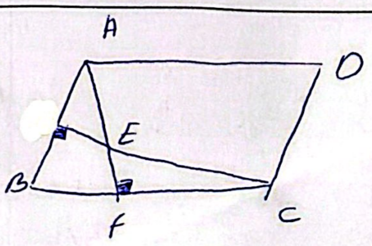

$B\overset{\triangle}{A}F \overset{\text{زز}}{\sim} ECF \qquad \frac{BF}{EF} = \frac{AF}{CF} \to \frac{6}{x} = \frac{8+x}{8}$

$\to x(x+8) = 48 \to x^2+8x-48 = 0 \begin{cases} x=-12 \text{ غ ق ق} \\ x=4 \end{cases}$

$x=4 \longrightarrow AF = 8+x = \boxed{12}$

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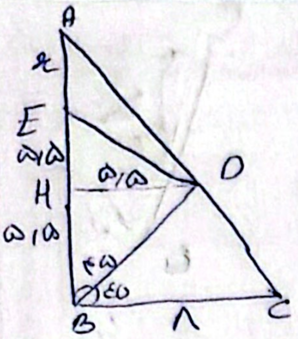

$$\frac{AH}{AB}=\frac{DH}{BC}\to\frac{5.5+x}{11+x}=\frac{5.5}{8}\to 44+8x=60.5+5.5$$

$$\to 2.5x=16.5\to x=\frac{16.5}{2.5}=\boxed{6.6=AE}$$ ۶

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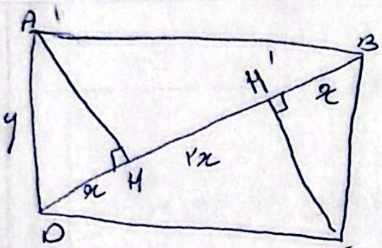

$HH'=2DH=2BH'=2x$

$\hat{ABD}\to y^2=x(4x)\quad AD^2=DH\times DB\to \boxed{y=2x}$ ۷

$\hat{ABD}\to AB^2=BD^2-AD^2\to AB^2=(4x)^2-(2x)^2=12x^2\to AB=2\sqrt{3}\,x$

$\hat{ADH}: AH^2=AD^2-DH^2\to AH^2=(2x)^2-(x)^2=3x^2\to AH=\sqrt{3}\,x$

$$\frac{S_{مستطیل}}{S_{ADH}}=\frac{AB\times AD}{\frac{1}{2}AH\times DH}=\frac{(2\sqrt{3}x)(2x)}{\frac{1}{2}(\sqrt{3}x)(x)}=\boxed{8}$$

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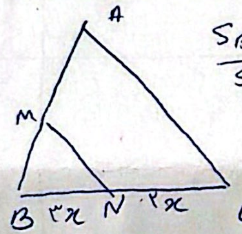

$$\frac{S_{BMN}}{S_{ABC}}=\frac{BM\times BN}{BA\times BC}=\frac{BM}{AB}\times\frac{3}{5}=\frac{1}{3}\to\frac{BM}{AB}=\frac{5}{9}\to$$ ۸

$$\frac{BM}{AM}=\frac{5}{4}=\boxed{1.25}$$

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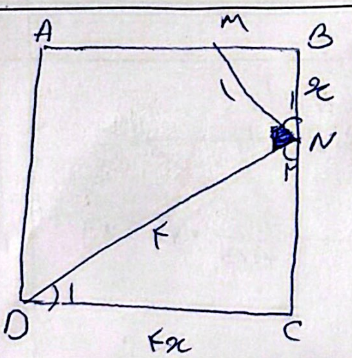

$\hat{MND}=90^\circ\to\hat{N_1}+\hat{N_2}=90^\circ$

$\hat{DNC}:\hat{C}=90^\circ\to\hat{D_1}+\hat{N_2}=90^\circ$ $\Big\}\ \hat{D_1}=\hat{N_1}$

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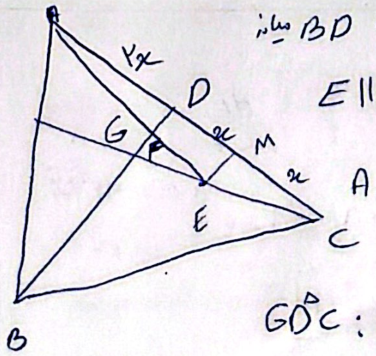
$\hat{DNC}\sim\hat{BMN}\to\frac{DN}{MN}=\frac{DC}{BN}\to\frac{4}{1}=\frac{DC}{BN_x}\to DC=4x$ ۹

$BC=DC=4x\to NC=3x$

$\hat{DNC}: DN^2=DC^2+NC^2\to 4^2=(4x)^2+(3x)^2\to 16=25x^2$

$\to x=\frac{4}{5}$ صحیح $\quad S_{ABCD}=DC^2=\left(\frac{16}{5}\right)^2=\frac{256}{25}=\boxed{10.24}$



میانه $BD\to\frac{GD}{BD}=\frac{1}{3}$ ، $AD=DC$

$E\parallel BD\quad \hat{GDC}: EM\parallel GD\to\frac{EG}{EG}=\frac{Cm}{Dm}\to Cm=Dm=x$

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$AD=2x$ ۱۰

$\hat{AEM}: FD\parallel EM\to\frac{AD}{AM}=\frac{FD}{EM}\to\frac{2x}{3x}=\frac{FD}{EM}\to EM=\frac{3}{2}FD$

$\hat{GDC}: EM\parallel DG\to\frac{Cm}{CD}=\frac{Em}{GD}\to\frac{x}{2x}=\frac{Em}{GD}\to GD=2Em$

$\to GD=2\left(\frac{3}{2}FD\right)\quad\frac{GD}{BD}=\frac{1}{3}\to\frac{3FD}{BD}=\frac{1}{3}\to\boxed{\frac{BD}{FD}=9}$