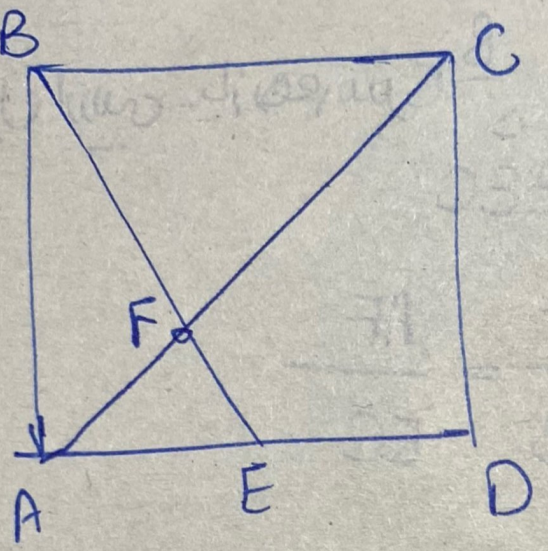
نوشین اربینی - یازدهم سری B ①



$ED = 2AE$

$\frac{EF}{AF} = ?$

⓪

$AFE \sim CFE$

$\frac{AF}{FC} = \frac{AE}{ED} = \frac{1}{2}$

$AC = AF + \underbrace{FC}_{2AF}$

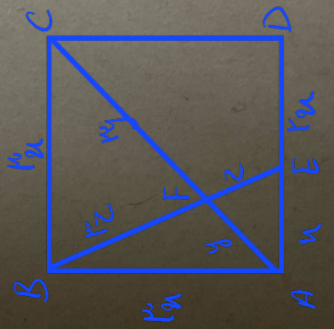
$\frac{EF}{AF} = 2$

⑫

$BE^2 = (\sqrt{2}a)^2 + a^2 \rightarrow BE = \sqrt{10}a \rightarrow z + 2z = \sqrt{10}a \rightarrow z = \frac{\sqrt{10}}{3}a$

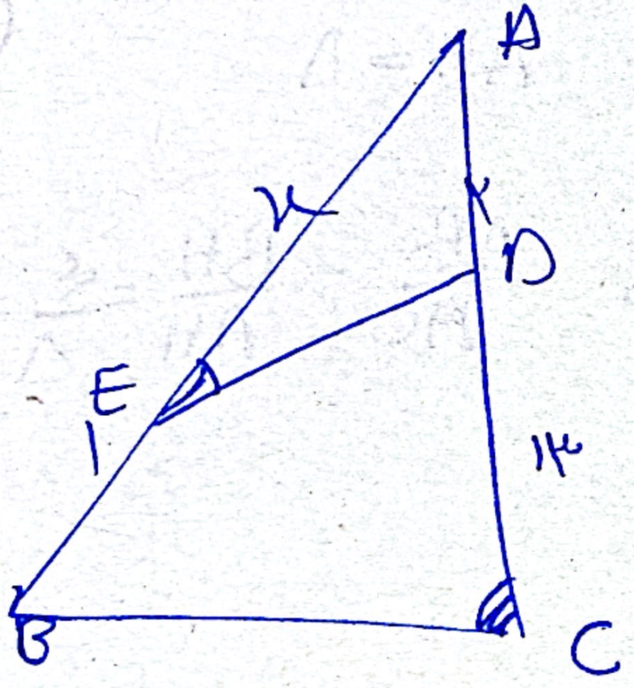
$(AC)^2 = (3a)^2 + (\sqrt{2}a)^2 \rightarrow AC = 3\sqrt{2}a \rightarrow 4y = 3\sqrt{2}a \rightarrow y = \frac{3\sqrt{2}}{4}a$

$\frac{EF}{AF} = \frac{z}{y} = \frac{\sqrt{10}}{3}$



نوشین اردبیلی - یازدهم سری B

(۲)



$AED \sim ABC$

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

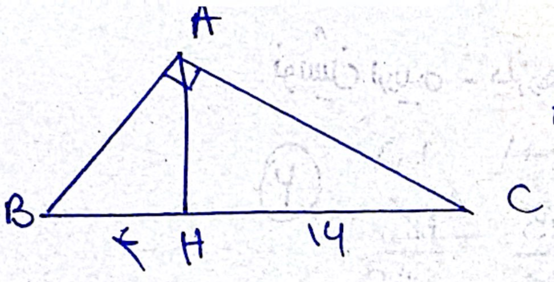
($AB = x+1$, $AD = ۲$, $AC = ۱۵$)

$$۳۰ = x^2 + x$$

$$\boxed{x = ۵}$$

۳

(۴)



$AH^{۲} = BH \times HC = ۶۴$ $AH = ۸$

$ABH \sim ABC$ $\frac{AB}{AC} = \frac{BH}{AH} = \frac{۴}{۸} = \frac{۱}{۲}$

۳

(۳)

$DE \parallel BC$ $۳y = ۵x$ $BF = ۳$ $BC = ?$

$ADE \sim ABC$ $\frac{AE}{AC} = \frac{DE}{BC} \longrightarrow \frac{x}{۳x} = \frac{DE}{BC} = \frac{۱}{۳}$

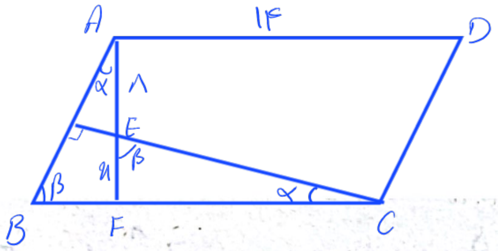
$۹BC = ۳DE$

$\boxed{BC = ۹}$

۰

$AC = x + ۱,۲y$ $x + ۱,۲(\frac{۵}{۳}x) = ۳x$

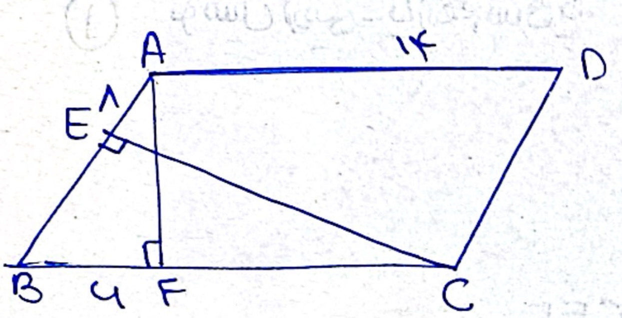
$\frac{DE}{BC} = \frac{۳}{BC}$ $\boxed{DE = ۳}$



$\frac{x}{6} = \frac{8}{x+8} \to x = 4$

$AF = 4 + 8 = 12$

⑤ نوشین اردبیلی - یازدهم سری B



$\overset{\triangle}{ABF} \sim \overset{\triangle}{BEC}$

$\frac{AB}{BC} = \frac{BF}{EB} = \frac{AF}{EC}$

۰

$\frac{8 + EB}{14} = \frac{6}{EB}$ $\quad EB^2 + 8EB - 84 =$

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

$AB^2 = AF^2 + BF^2$

$14^2 = AF^2 + 36$

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

(۴

$EH = BH = \frac{11}{2} = y$

$\frac{x + 5{,}5}{11 + x} = \frac{5{,}5}{8} \to x = \frac{33}{5}$

۰

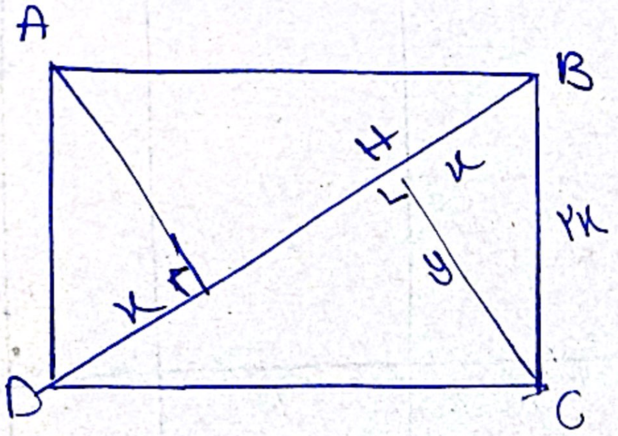
(۳

$\frac{AE}{AC} = \frac{AD}{AB} = \frac{DE}{BC} \to \frac{x}{3x} = \frac{DE}{BC} \to BC = 3DE$ ①

$\overset{\triangle}{DHE} \sim \overset{\triangle}{CHF} \to \frac{EH}{FH} = \frac{DH}{CH} = \frac{DE}{CF} \to \frac{x}{\frac{5}{3}x} = \frac{DE}{CF} \to CF = \frac{5}{3} DE$ ②

①,② $\to BC = BF + CF \to DE = \frac{9}{4} \quad BC = 3 \times \frac{9}{4} = 6{,}75$

(7) (5)



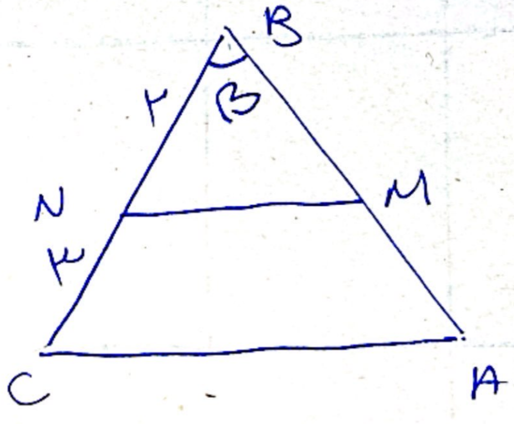
$$\frac{S_{ABCD}}{S_{BHC}} = \frac{2x \times 2\sqrt{3}x}{\frac{x \times \sqrt{3}x}{2}} = 8$$

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

$BC^2 = x^2 + 3x^2 \qquad BC = 2x$

$DC^2 = 16x^2 - 4x^2 = 12x^2 \qquad DC = 2\sqrt{3}x$

$$\frac{S_{ABC}}{S_{BNM}} = \frac{\frac{1}{2} \times AB \times BC \times \sin B}{\frac{1}{2} \times BM \times BN \times \sin B} = 3 \quad (8)$$

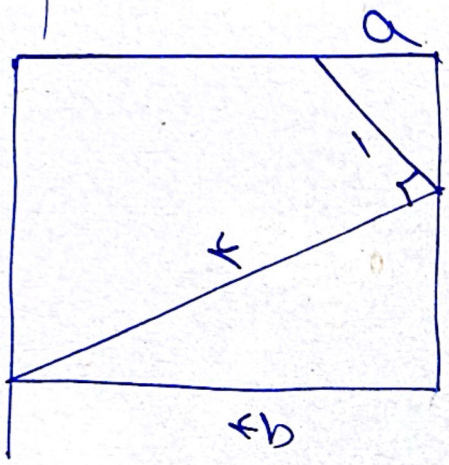


$\frac{BM}{BA} \times \frac{BN}{BC} = \frac{1}{3}$ ($\frac{BN}{BC} = \frac{3}{5}$) $\qquad \frac{BM}{BA} = \frac{5}{9}$

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

نوشین اردبیلی - یازدهم ریاضی

نوشین اربیی - یازدهم سری B



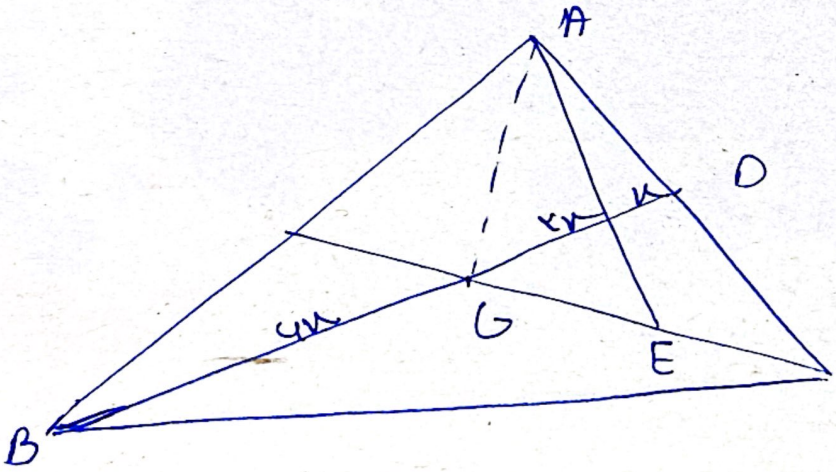
۹

$۴a+b=۴b \quad a=\frac{۳}{۴}b$

$(\frac{۳}{۴}b)^۲+b^۲=۱$

$b=\frac{۴}{۵}$ ضلع مربع $=\frac{۱۶}{۵}$ ۵

مساحت مربع $=(\frac{۱۶}{۵})^۲$



۱۰

میانه‌ها به نسبت ۱ به ۲

هریکدام را قطع می‌کنند ۵

$\frac{BD}{FD}=\frac{۹x}{۸}=۹$