

۱۳۸۲

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۲۱ کلاس: تاریخ:

$$ED = 2AE \rightarrow AE = \frac{1}{2} AD$$

$$\left. \begin{array}{l} \frac{EF}{AF} = \frac{F_1}{F_2} \\ AD \parallel BC \end{array} \right\} \rightarrow \frac{AF}{AC} = \frac{EF}{EB} = \frac{AE}{BC} = \frac{1}{2}$$

$$\frac{EF}{AF} = \frac{EB}{AC} = \frac{\sqrt{10}}{2\sqrt{2}} = \frac{\sqrt{10}}{2\sqrt{2}}$$

$$\frac{EF}{AF} = \frac{\sqrt{10}}{2} = \frac{2\sqrt{10}}{4} = \frac{\sqrt{10}}{2}$$

$$\frac{EF}{AF} = \frac{EB}{AC} \quad AC = a\sqrt{2}$$

$$BE = \sqrt{\left(\frac{1}{2}a\right)^2 + a^2} = \sqrt{\frac{1}{4}a^2 + a^2} = \sqrt{\frac{5}{4}a^2} = \frac{\sqrt{5}}{2}a$$

$$\left. \begin{array}{l} \hat{AED} = \hat{ACB} \\ A_1 = A_1 \end{array} \right\} \hat{AED} \sim \hat{ABC} \rightarrow \frac{AD}{AB} = \frac{AE}{AC} = \frac{ED}{BC} \rightarrow \frac{2}{2+1} = \frac{a}{10}$$

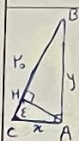
$$2^r + 2 = 2^r$$

$$\left. \begin{array}{l} 2^r + 2 - 2^r = 0 \\ (2+4)(2-5) = 0 \end{array} \right\} \begin{array}{l} 2 = -4 \text{ (مطلوب نیست)} \\ 2 = +5 \checkmark \end{array}$$

$$\left. \begin{array}{l} DE \parallel BC \\ y = \frac{2n}{r} \end{array} \right\} \rightarrow \frac{AE}{AC} = \frac{AD}{AB} = \frac{DE}{BC} \rightarrow \frac{2}{2n+2} = \frac{AD}{AB} = \frac{DE}{BC} = \frac{1}{r}$$

$$\left. \begin{array}{l} \frac{EH}{FH} = \frac{DH}{CH} = \frac{DE}{CF} \rightarrow \frac{2}{2n} = \frac{DH}{CH} = \frac{DE}{CF} = \frac{r}{2} \end{array} \right\} \begin{array}{l} DE = \frac{1}{r} BC \\ DE = \frac{r}{2} (BC - 2) \end{array}$$

$$\frac{1}{r} BC = \frac{r}{2} BC - \frac{r}{2} \rightarrow \Delta BC = 9BC - 2r \quad \Delta BC = 2r \rightarrow BC = \frac{2r}{\epsilon}$$



$$\left. \begin{array}{l} C_1 = C_1 \\ H_1 = 9_0 \\ A_1 = 9_0 \end{array} \right\} \hat{ACH} \sim \hat{ABC} \rightarrow \frac{\epsilon}{n} = \frac{2}{2^r} \Rightarrow 2^r = 10 \Rightarrow 2^r = \sqrt{10} = \sqrt{10}$$

$$(\sqrt{10})^r + y^r = 2^r$$

$$10 + y^r = 2^r$$

$$y^r = 2^r - 10 = 2^r \rightarrow y = \sqrt{2^r} = \sqrt{10}$$

$$\frac{1\sqrt{10}}{r\sqrt{10}} = r$$

$$AF = ? \quad AF = AE + EF = 1 + EF$$

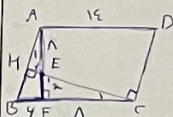
$$AB \parallel DC, CH \perp AB \rightarrow CH \perp DC$$

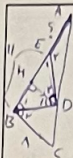
$$A = C \rightarrow A - 9_0 = C - 9_0 \rightarrow A_1 = C_1$$

$$\left. \begin{array}{l} A_1 = C_1 \\ H_1 = F \end{array} \right\} \hat{ABF} \sim \hat{ECF} \rightarrow \frac{y}{n} = \frac{1+2}{1} = \frac{BA}{EC}$$

$$2^r + 2 = 2^r \Rightarrow \begin{cases} -2x \\ +2\checkmark \end{cases} \rightarrow EF = 2$$

$$AF = 1 + EF = 1 + 2 = 3$$





$HD \parallel BC, BD \parallel \dots B_1 = D_1, B_2 = B_1 \rightarrow B_1 = D_1 \rightarrow \widehat{BHD}$ مناسبات

$B_1 = D_1, H = 90^\circ \rightarrow B_1 = D_1 = 90^\circ, D_1 + D_2 = 90^\circ, H = 90^\circ \rightarrow E_1 = 90^\circ$

$B_1 = E_1, DH \parallel \dots \rightarrow \frac{BH}{HD} = \frac{11}{V}, \frac{BD}{DE} = \frac{11}{V} \sqrt{V}, \frac{HB}{HE} = \frac{11}{V}$

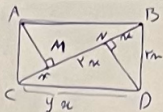
$HD \perp AB, HD \parallel BC \rightarrow BC \perp AB \rightarrow B_1 + B_2 = 90^\circ$

$\begin{matrix} A = A_1 \\ H = B_1 \end{matrix} \rightarrow \widehat{AHD} \sim \widehat{ABC} \rightarrow \frac{AH}{AB} = \frac{AD}{AC} = \frac{HD}{BC} \rightarrow \frac{n + \frac{11}{V}}{n + 11} = \frac{11}{V}$

$$11n + 121 = \frac{11}{V}n + \frac{121}{V} \rightarrow n = \frac{11V}{V-1} \sim AE = \frac{11V}{V-1}$$

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$MN = \frac{1}{2}NB = \frac{1}{2}MC, S \widehat{AMC} = S \widehat{BND} < S \widehat{AMB} = S \widehat{CND}$

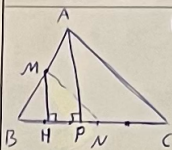
$$\frac{S_{\widehat{AMC}}}{S_{\widehat{AMC}}} = \frac{AB \times AC}{CM} = \frac{2AB}{CM} = ? = \frac{2AB}{n} = \frac{2\sqrt{17}n}{n} = \boxed{2\sqrt{17}}$$

$\begin{matrix} B = B_1 \\ D = N \end{matrix} \} \widehat{CBD} \sim \widehat{NBD} \rightarrow \frac{BN}{DB} = \frac{ND}{CD} = \frac{BD}{BC} \rightarrow \frac{n}{BD} = \frac{ND}{CD} = \frac{BD}{BC} \sim BD' = \epsilon n \rightarrow BD = \epsilon n$

$$(\epsilon n)^2 + (y n)^2 = (\epsilon n)^2 \rightarrow y^2 = 17 \rightarrow y = \sqrt{17} \Rightarrow CD = AB = \sqrt{17}n$$

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$PB \cdot N = PC \cdot N, BN + CN = 2n \sim \frac{BN}{BC} = \frac{PC}{2n} = \frac{1}{2}$

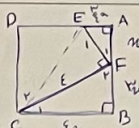
$$\frac{S \widehat{ABC}}{S \widehat{BMN}} = 4 \rightarrow \frac{2n \times (2n)}{n \times n} = 4 \rightarrow \boxed{4} = \frac{2n}{9} \rightarrow \frac{AP}{HM} = 9$$

$$\boxed{\frac{BM}{AM} = \frac{2}{1}}$$

$\begin{matrix} \hat{B} = \hat{B}_1 \\ \hat{H} = \hat{P} \end{matrix} \} \widehat{BMH} \sim \widehat{ABP} \Rightarrow \frac{AP}{MH} = \frac{AB}{MB} = \frac{9}{2} \Rightarrow \frac{MB + AM}{MB} = \frac{9}{2} \Rightarrow \frac{AM}{MB} = \frac{9}{2} - 1 = \frac{7}{2}$

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$F_1 + 90^\circ = C_1 + B, B = 90^\circ \rightarrow F_1 = C_1$

مناسبات

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$FB = 2AE$

$\begin{matrix} F_1 = C_1 \\ A = B \end{matrix} \} \widehat{AEF} \sim \widehat{CBF} \Rightarrow \frac{AE}{FB} = \frac{AF}{BC} = \frac{EF}{CF} = \frac{1}{2} \rightarrow BC = 2AF$

$(12n)^2 + (8n)^2 = 14^2 \rightarrow 20n^2 = 14 \rightarrow n = \frac{7}{\sqrt{10}} \sim \epsilon n = \frac{14}{\sqrt{10}} \rightarrow BC = \frac{14}{\sqrt{10}}$

$$S = (BC)^2 = \left(\frac{14}{\sqrt{10}}\right)^2 = \frac{196}{10} = 19.6$$

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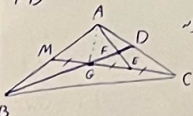
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$\frac{BD}{FD} = ? \sim MC \rightarrow \frac{MB}{CG} = \frac{1}{V} \rightarrow MB = GE = EC$

$\sim BD \rightarrow \frac{GD}{BG} = \frac{1}{V}, GD \rightarrow GF = VFD \rightarrow GD = VFD \textcircled{1}$

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$\textcircled{1} \rightarrow \frac{VFD}{BG} = \frac{1}{V} \rightarrow BG = VFD \textcircled{2}$

$$BD = BG + GD \textcircled{1,2} \rightarrow VFD + VFD = 2FD \quad \frac{BD}{FD} = \frac{2FD}{FD} = \boxed{2}$$

$$ABO \rightarrow h^r = a \times r_u \rightarrow h = \sqrt{r} u$$

(V

$$S_{\square} = r \times S_{ABD} = \frac{r \times h \times r_u}{r} = \sqrt{r} u \times r_u = \sqrt{r} a^r$$

$$S_{\triangle} = \frac{h \times u}{r} = \frac{\sqrt{r} a^r}{r} \quad \frac{S_{\square}}{S_{\triangle}} = \wedge$$