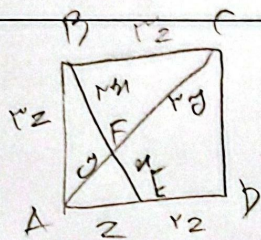


نام و نام خانوادگی کلاس شماره پاسخنامه تشریحی تکلیف شماره ۲۱

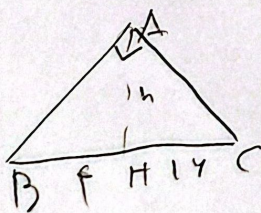


$$BE = ED, AE = EC \rightarrow AEF \sim BCF$$

$$\rightarrow ABC: \left. \begin{array}{l} EF = 12 \\ EN = 12 \end{array} \right\} \frac{EF}{AF} = \frac{8}{2}$$

$$\frac{x}{10} = \frac{r}{x+1} \rightarrow x^2 + x - 10 = 0 \rightarrow x = 4$$

$$\frac{DE}{FC} = \frac{r}{x} \quad \frac{DE}{BF+FC} = \frac{x}{12y+x} = \frac{1}{12} \rightarrow BC = BF+FC = \frac{12}{r}$$



$$\left. \begin{array}{l} AB^2 = BH \times BC \\ AC^2 = CH \times CB \end{array} \right\} \frac{AC}{AB} = r$$

$$\left. \begin{array}{l} FC = BC - BF = 1 \\ B \hat{H} C \Rightarrow B + C = 90 \\ \angle F C \Rightarrow E_1 + C_1 = 90 \end{array} \right\} \begin{array}{l} EF(1+EF) = 4 \times 1 \\ \rightarrow EF^2 + 1 \cdot EF - 4 = 0 \\ \Rightarrow EF = 2 \end{array}$$

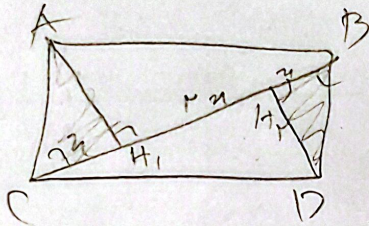
$$\frac{D_1 + B_1}{B_1} = 90 \rightarrow D_1 = B_1 = 45$$

$$P_1 = 90 - D_1 = 45$$

$$E_1 = 90 - B_1 = 45$$

$$HE = BH = HD = 0.10$$

$$\frac{AE + 0.10}{AE + 11} = \frac{0.10}{1} \rightarrow 1.0 AE = 17.8 \rightarrow AE = 17.8$$



$$CH_1 = CH_2 = x$$

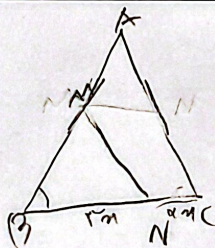
$$AC = BD \quad \left\{ \begin{array}{l} \angle C = \angle D \\ AC \parallel BD \end{array} \right.$$

$$S_{ACH_1} = S_{BDH_2}$$

$$\begin{array}{l} ABC \xrightarrow{\frac{1}{2}S} ACH_1 \\ BDC \xrightarrow{\frac{1}{2}S} BDH_2 \end{array}$$

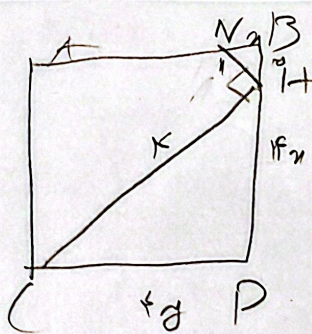
$$S_{\square} = 2S_{ABC} \rightarrow S_{ACH_1} = \frac{1}{2}S_{\square} = 17.8$$

$$\frac{S_{\square}}{S_{ACH_1}} = \frac{17.8}{17.8} = 1$$



$$\frac{1}{2} S_{ABC} = \frac{1}{2} S_{AMN} \rightarrow \frac{AM + BM}{BM} = \frac{9}{2} \rightarrow \frac{BM}{AM} = \frac{1}{7}$$

$$\frac{AM + BM}{BM} = \frac{9}{2} \rightarrow \frac{BM}{AM} = \frac{1}{7}$$



$$NPH \sim HDC \rightarrow \frac{NB}{HD} = \frac{1}{7}$$

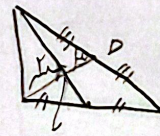
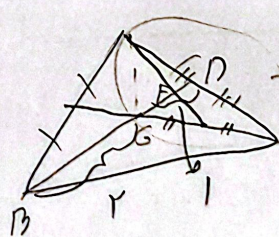
$$x^2 + y^2 = 1$$

$$xy \leq y + x \rightarrow x = \frac{y}{7}$$

$$\frac{9}{49} y^2 + y^2 = 1$$

$$\rightarrow y = \frac{7}{10}, x = \frac{1}{10}$$

$$\left(\frac{1}{10} \right)^2 = \left(\frac{r_{AB}}{r_D} \right)^2$$



$$r = 1 \rightarrow FD = \frac{1}{7}, BD = r \rightarrow \frac{BD}{FD} = 7$$