SUBJECT:
Year: Month: Day:

$A(\epsilon,-\varsigma)\quad B(\tau,\eta)\quad m_{AB}=\frac{\Lambda+\varsigma}{\tau-\epsilon}=-V$ ①

$m_{AB}(x-x_A)=y-y_A \Rightarrow -V(x-\epsilon)=y+\varsigma$

$\Rightarrow -Vx+\tau\tau \quad x=\frac{x_A+x_B}{\tau}=\frac{\epsilon+\tau}{\tau}=\tau \quad \frac{y_A+y_B}{\tau}=\frac{\Lambda-\varsigma}{\tau}=1$

$m=\frac{1}{V}(x-\tau)=y-1 \Rightarrow \frac{x}{V}-\frac{\tau}{V}=y=x-Vy=-\tau$

$d_{BC}=\sqrt{(-1+\epsilon)^\tau+(\tau-V)^\tau}=\sqrt{\tau^\tau+\varsigma^\tau}=\omega$ ②

$m_{BC}=\frac{V-\tau}{1-\epsilon}=\frac{-\varsigma}{\tau}\qquad m_{AH}=\frac{\tau}{\varsigma}$

$\frac{\tau}{\varsigma}(x-\tau)=y-1 \rightarrow \frac{\tau x}{\varsigma}-y=\frac{\eta}{\tau}$

$\Rightarrow \tau x-\varsigma y=\eta$

$\times\varsigma\begin{cases}\tau x-\varsigma y=\omega\\ -\varsigma x-\tau y=\eta\end{cases}\times\tau\begin{cases}1\tau x-1\varsigma y=\tau\circ\\ -1\tau x-\eta y=1\omega\end{cases}$

$-\tau\circ y=\tau\eta \quad y=\frac{-V}{\omega} \quad x=\frac{-1}{\omega}$

$d_{AH}=\sqrt{(\tau+\frac{1}{\omega})^\tau+(1+\frac{V}{\omega})^\tau}$

$=\sqrt{\frac{\epsilon\circ\circ}{\tau\omega}}=\frac{\tau\omega}{\omega}=\tau$

$d_{BC}-d_{AH}=\Lambda-\tau=1$

③

$\tau y-\eta x=\tau \qquad \tau y-x=V$

$\frac{-\eta}{-\varsigma}=\frac{\eta}{\varsigma}=\frac{1}{\tau}\Rightarrow \eta=\tau$

$\epsilon y-\eta x=\tau$

$\tau y-x=V \rightarrow \epsilon y-\tau x=1\varsigma$

فاصله دو خط موازی $\frac{|c+c'|}{\sqrt{a^\tau+b^\tau}}=\frac{|1\varsigma-\tau|}{\sqrt{\epsilon^\tau+\tau^\tau}}=\frac{1\tau}{\sqrt{\tau\omega}}=\frac{\varsigma\sqrt{\eta}}{\eta}=\tau\tau$

$\tau=\frac{\tau\sqrt{\omega}}{\omega}$

$\pi r^\tau=\pi\times\frac{1}{\tau}\times\frac{\eta}{\tau\omega}\Rightarrow\frac{\eta\pi}{\eta}$

(۴) $A(۲,۳)$ $B(۴,۱)$ $C(-۱,-۳)$

$M\left(\frac{۲+۴}{۲}=۳, \frac{۳+۱}{۲}=۲\right)$ $(۳,۲)$

$m_{AB}=\frac{۳-۱}{۲-۴}=\frac{۲}{-۲}=-۱$ $\quad m_{CM}=+۱$ $\quad x-۲$

$y=-x+a$ $\quad \begin{cases} -x-y=-a \\ x-y=۲ \end{cases}$

$-۲y=-۴$ $\quad x=\frac{۳}{۲}$ $\quad y=\frac{۷}{۲}$

$\sqrt{(۲-\frac{۳}{۲})^۲+(۲-\frac{۷}{۲})^۲}=\sqrt{(\frac{۳}{۲})^۲+(\frac{-۳}{۲})^۲}=\frac{۳\sqrt{۲}}{۲}$

(۵) $\frac{-(m+۱)}{-(۳m-۴)}=\frac{۵-m}{۳m-۲}$

$(۳m-۲)(m+۱)=(۵-m)(۳m-۴)$

$۳m^۲+۳m-۲m-۲=۱۰m-۲۰-۳m^۲+۴m$

$\Rightarrow ۵m^۲-۱۳m+۱۸ \rightarrow \Delta=(-۱۳)^۲-۴(۵)(۱۸) \rightarrow ۱۶۹-۳۶۰<۰$

جواب ندارد ← هیچ مقدار m

(۶) $\begin{cases} ۲y=-x+۳ \\ y=-x+۲ \end{cases} \Rightarrow B(۵,-۱)$

$\begin{cases} ۲y=-x+۴ \\ y=۲x-۱ \end{cases} \Rightarrow A(۱,۱)$ $\quad \begin{cases} y=۲x-۱ \\ y=۶-x \end{cases} \Rightarrow C(\frac{۷}{۳},\frac{۱۷}{۳})$

$M=\left(\frac{۵+۱}{۲}, \frac{-۲+۷}{۲}\right)=M(۳,\frac{۵}{۲})$

$AM=\sqrt{(\frac{۷}{۳})^۲+(\frac{۱}{۲})^۲}=\frac{\sqrt{۵۳}}{۶}$

$m_{AM}=-۱$ $\quad x+y=۴$

فاصله نقطه A تا BC $=\frac{|۱+۱-۴|}{\sqrt{۲}}=\frac{۲\sqrt{۲}}{۲}$

$\frac{\frac{\sqrt{۵۳}}{۶}}{\sqrt{۲}}=\frac{۵\sqrt{۲}}{۴\sqrt{۲}}=\frac{۵}{۴}$

Senobar

(۷) $\frac{x}{a}+\frac{y}{b}=1$ $\quad m=\frac{-b}{a}=\frac{-1}{2}\to\frac{b}{a}=\frac{1}{2}$

$\alpha ab: bx+ay=ab$ $\quad b=\frac{a}{2}$

$d=\frac{|ab|}{\sqrt{b^2+a^2}}=\sqrt{20}$ $\quad \frac{\left|\frac{a^2}{2}\right|}{\sqrt{a^2+\frac{a^2}{4}}}=\frac{a\sqrt{a}}{5}=\sqrt{20}$

$a=\frac{\sqrt{20}\sqrt{5}}{\sqrt{5}}\Rightarrow a=10$, $b=5$

$A=(a,0)=(10,0)$ $\quad B=(0,b)=(0,a)$

$\sqrt{(10-0)^2+(0-a)^2}=\sqrt{100+25}=\sqrt{125}=5\sqrt{5}$

(۸)
$$\begin{cases} my-4x=2m \Rightarrow y=\frac{4x}{m}+2m \\ y=x+2-mx \end{cases}$$

$\frac{4x}{m}+2m=-mx+x+2$

$\Rightarrow -m^2x+mx-2m=4x+2m^2$:

$0=\frac{4x}{m}+2\Rightarrow x_A=\frac{-m}{2}$ $\quad C=(0,2)$

$\Rightarrow 0=(1-m)x+2\Rightarrow x_B=\frac{2}{m-1}$

$S=\left|x_B-x_A\right|=\left|\frac{2}{m-1}+\frac{m}{2}\right|=\frac{5}{2}$

① $\frac{-4+m-m^2}{2}=\frac{5}{2}\Rightarrow m^2-m+9=0$ $\quad m\in\varnothing$

② $\frac{-m^2+m-4}{2}=\frac{-5}{2}\Rightarrow m^2-m+4=5$

$m^2-m-1=0\Rightarrow x=\frac{1\pm\sqrt{5}}{2}$

$2\alpha\left(\frac{-2+\sqrt{5}}{4}\right)\left(\frac{-2-\sqrt{5}}{4}\right)=-1$

Senobar

(9) $y - 2x = -2$ $\quad m(x_2 - 2)$

$\hookrightarrow m = 2$ $\quad \frac{-1}{2}(x-2) = y+2$

$-\frac{x}{2} + 1 - 2 = y \quad \frac{+x}{2} + y = -1$

$\begin{cases} x + 2y = -2 \\ -2x + 2y = -6 \end{cases}$

$-3x = 4 \quad x = \frac{4}{3}, \quad y = \frac{-5}{3}$

$\frac{\frac{4}{3} + x}{2} = 2 \qquad \frac{\frac{-5}{3} + y}{2} = -2 \Rightarrow y = \frac{-11}{3}$

$\hookrightarrow x = \frac{13}{3}$

$m = 2 \longrightarrow 2\left(x - \frac{13}{3}\right) = y + \frac{11}{3} \Rightarrow y = 2x - 9$

(10) $y = x + 3$ $\quad A(1, 2)$

$y - x = 3$ $\quad -1(x-1) = y-2$

$\hookrightarrow m = 1$ $\quad y = -x + 3$

$\begin{cases} y = x + a \\ y = -x + 3 \end{cases}$

$\frac{1+a}{2} = -1 \qquad \frac{2+b}{2} = 4$

$a = -3 \qquad b = 6$

$2x = -2$

$x = -1, \quad y = 2$ $\quad 2b - a = 2(6) - (-3) = 15$