

۱) $\left| \frac{p}{r} \right|_{-r}^{\infty} \rightarrow m = \frac{-r-p}{\omega-f} = \frac{-r}{f} = -\frac{r}{f}$
 $y = ax + b \rightarrow y = -\frac{r}{f}x + b \rightarrow p = -\frac{r}{f} + b$
 $b = 1 \rightarrow y = -\frac{r}{f}x + 1$

۲) $ky + 4ax - 1 \rightarrow m = \frac{b}{a} = \frac{-4}{r} = -\frac{4}{r}$
 $-\frac{r}{f}x + b = -\frac{4}{r}x + b \rightarrow b = 1$
 $y = -\frac{r}{f}x + 1$

۳) $ky = 1 \rightarrow \frac{-b}{a} = m = \frac{-1}{r} \rightarrow m = \frac{1}{r}$
 $ky + b = 1 \rightarrow 1 + b = r \rightarrow b = r - 1$
 $y = \frac{1}{r}x - 1$

۴) $m = \tan \frac{\pi}{4} = \sqrt{r} \rightarrow \sqrt{r}x + b \rightarrow$
 $\sqrt{r} + b = r \rightarrow b = r - \sqrt{r}$
 $y = \sqrt{r}x + r - \sqrt{r}$

۵) $\left| \frac{p}{r} \right|_v^1 \rightarrow \sqrt{(y_1 - y_2)^2 + (x_1 - x_2)^2}$
 $(1 - r)^2 + (-1 - r)^2 = 19 + 9 = 28$
 $\sqrt{28} = \boxed{2\sqrt{7}}$

۶) $ky + r = r \left| \frac{p}{r} \right|$
 $\text{تب } |ax_A + by_A + c| = \frac{|4 + 11 - r|}{\sqrt{4 + 14}}$
 $\frac{10}{5} = r$

۷) $4x + y = 1$ و $ky + r = 9$ موازی
 $ax + by + \frac{c+c'}{r} = 0 \rightarrow 4x + y + \frac{-1}{r} = 0$
 $4x + y = 1 \rightarrow 4x + y = 1 \rightarrow ky + r = 9 \rightarrow ky + r = 9$

۸) $\frac{|c-c'|}{\sqrt{a^2+b^2}} = \frac{|11-1|}{\sqrt{4+4}}$
 $\frac{r}{\sqrt{18}} \times \frac{\sqrt{18}}{\sqrt{18}} = \frac{r\sqrt{18}}{18}$

$ky - r = 1$ $ky + r = r \rightarrow \frac{|ax_A + by_A + c|}{\sqrt{a^2+b^2}} = \frac{|ax_B + by_B + c|}{\sqrt{a'^2+b'^2}}$
 $\frac{|ky - r - 1|}{\sqrt{18}} = \frac{|ky + r - r|}{\sqrt{18}} \rightarrow |ky - r - 1| = |ky + r - r|$
 $ky - r - 1 = ky + r \rightarrow 2r = 2 \rightarrow r = 1$
 $r - ky - r = 2 \rightarrow -ky = 2 \rightarrow ky = -2$

$y + ky = r$ $y - ky = 2 \rightarrow m = \tan \alpha \rightarrow \tan \alpha = \left| \frac{m - m'}{1 - mm'} \right|$
 $m = -\frac{r}{k}$ $m = r$
 $\left| \frac{r + r}{1 - r} \right| = 1 \rightarrow \tan \alpha = 1 \rightarrow \alpha = 45^\circ = \frac{\pi}{4}$

الف) $\begin{vmatrix} 1 & -1 \\ 1 & 1 \end{vmatrix} \begin{vmatrix} A & B \\ -1 & 1 \end{vmatrix} \rightarrow \sqrt{(\Delta y)^2 + (\Delta x)^2}$
 $(-1-1)^2 + (1+1)^2 = 2^2 + 2^2 = 100$
 $\sqrt{100} = 10$

ب) $\frac{y_A + y_B}{2} = y', \quad \frac{x_A + x_B}{2} = x'$
 $\frac{1-0}{2} = -1, \quad \frac{-1+1}{2} = 1$
 $M \begin{vmatrix} -1 & 1 \\ 1 & 1 \end{vmatrix}$
 $\log \frac{1}{-1}$

5

الف) $\begin{vmatrix} -1 & -1 & 1 \\ 1 & 1 & 1 \end{vmatrix} \begin{vmatrix} A & B & C \\ -1 & 1 & 1 \end{vmatrix}$
 $\frac{A_A + A_B + A_C}{2} = \frac{1-1-1}{2} = \frac{-1}{2}$
 $\frac{y_A + y_B + y_C}{2} = \frac{-1+1+1}{2} = \frac{1}{2}$

ب) $\frac{1}{2} \begin{vmatrix} -1 & -1 & 1 \\ 1 & 1 & 1 \end{vmatrix} = -19 - 9 - 10 = -29$
 $\frac{A_A}{2} = \frac{1}{2} = 1/2$

5

ج) $\begin{vmatrix} -1 & 1 \\ 1 & 1 \end{vmatrix}$

الف) $y = \frac{10x+1}{10x-1} \rightarrow$ $y = \frac{10x+1}{10x-1}$
 $-y = \frac{10x+1}{10x-1} \rightarrow y = \frac{10x+1}{10x-1}$

ب) $y = \frac{10x+1}{10x-1} \rightarrow$ $y = \frac{10x+1}{10x-1}$
 $y = \frac{10x+1}{10x-1} \rightarrow y = \frac{10x+1}{10x-1}$

5

ج) $y = \frac{10x+1}{10x-1} \rightarrow$ $y = \frac{10x+1}{10x-1}$
 $x = \frac{10y+1}{10y-1} \rightarrow y = \frac{10x+1}{10x-1}$

د) $y = \frac{10x+1}{10x-1} \rightarrow$ $y = \frac{10x+1}{10x-1}$
 $-y = \frac{10x+1}{10x-1} \rightarrow y = \frac{10x+1}{10x-1}$

A

الف) $y = \frac{10x+1}{10x-1} \rightarrow n' = n-1$
 $y' = y + 1$
 $y' - 1 = \frac{10x+1}{10x-1} \rightarrow y' = \frac{10x+1}{10x-1} + 1$

ب) $n' = n-1, y' = y-1$
 $y + 1 = \frac{10x+1}{10x-1} \rightarrow y' = \frac{10x+1}{10x-1}$

5

الف) $10x+1 = y$
 $(10-1=1) \quad x-1$
 $10x+1 = y \rightarrow y = \frac{1}{19}, x = \frac{1}{19}$
 $-10x+1 = -y$

ب) $10x+1 = y$
 $n-1 = y$
 $\begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix} \begin{vmatrix} 1 & 1 \\ 1 & 1 \end{vmatrix}$
 $y = \frac{1}{19}$

1,10