

1- ا)  $m = \frac{r}{-1} = -r \rightarrow ax + by = -rx + r + b = r \Rightarrow b = 1 \rightarrow y = -rx + 1$   
 ب)  $y + rx = -\frac{1}{r}$   
 $y + rx = -\frac{1}{r} \rightarrow y = -rx - \frac{1}{r} \rightarrow 1 \neq \rightarrow y - r = -r(x - 1) \rightarrow y = -rx + 1$

2- ا)  $y = -\frac{1}{r}x + \frac{1}{r} \rightarrow m = r \rightarrow y = rx + b \rightarrow 1 \neq \rightarrow y = rx - 1$  (5)

ب)  $m = \tan\left(\frac{\pi}{4}\right) = \sqrt{r} \rightarrow y - r = \sqrt{r}(x - r) \rightarrow y = \sqrt{r}x - r\sqrt{r} + r$

2- ا)  $\sqrt{9 + 14} = \sqrt{23} = 2$

ب)  $\frac{|9 + 14 - r|}{\sqrt{9 + 14}} = \frac{|23 - r|}{\sqrt{23}} = r \Rightarrow r = 23$  (5)

3-  $rx + ry = r \quad rx + ry = 1$

ا)  $rx + ry = r \Rightarrow \text{multiplication} \rightarrow rx + ry = \frac{4r}{r} \Rightarrow rx + ry = 4$  (5)

ب)  $\frac{|c - c'|}{\sqrt{a^2 + b^2}} = \frac{|r|}{\sqrt{r^2 + 9}} = \frac{r}{\sqrt{13}}$

4-  $rx - ry = 1 \quad rx + ry = r$

$\frac{rx + ry - r}{\sqrt{r^2 + r^2}} = \frac{rx - ry - 1}{\sqrt{r^2 + r^2}} \rightarrow rx + ry - r = rx - ry - 1 \rightarrow 2ry = r - 1 \rightarrow y = \frac{r-1}{2}$   
 $rx + ry - r = rx - ry - 1 \rightarrow rx + ry - r = rx - ry - 1 \rightarrow 2ry = r - 1 \rightarrow y = \frac{r-1}{2}$  (5)

5-  $y + rx = 2 \quad y + rx = r$

$\tan \theta = \left| \frac{m - m'}{1 + mm'} \right| \rightarrow \tan \theta = \left| \frac{r + r}{1 + r^2} \right| = 1 \rightarrow \theta = 45^\circ$  (5)

6- ا)  $\sqrt{4 + 4r} = \sqrt{10} = 10$

ب)  $\left| \frac{\frac{r}{r}}{\frac{r}{r}} \right| = \left| \frac{-1}{1} \right|$  (5)

7- ا)  $\begin{vmatrix} -\frac{9}{r} \\ -\frac{9}{r} \end{vmatrix} = \begin{vmatrix} -c \\ -c \end{vmatrix}$

ب)  $\begin{bmatrix} r & -r & -10 \\ 1 & r & 10 \\ 1 & 1 & 1 \end{bmatrix} \rightarrow \frac{1}{r} \times [9 + r^2 + (-10) + c_0 + r + c_9]$   
 $\leftarrow \frac{1}{r} \times 9r = 9$  (5)

$$8. y = \frac{r_{n+1}}{r_n - c}$$

$$a) y = -\frac{r_{n+1}}{r_n - c}$$

$$b) y = \frac{-r_{n+1}}{-r_n - c}$$

$$c) x = \frac{ry+1}{ty-c} \rightarrow y = \frac{r_{n+1}}{r_n - c}$$

$$d) y = \frac{r_{n+1}}{r_n - c} \rightarrow -y = \frac{-r_{n+1}}{-r_n - c} \rightarrow y = \frac{-r_{n+1}}{r_n + c}$$

$$9. y = \frac{r_{n+1}}{r_n - c}$$

$$a) \left. \begin{array}{l} n' = n - r \rightarrow n = n' + r \\ y' = y + r \rightarrow y = y' - r \end{array} \right\} \rightarrow y' - r = \frac{r(n' + r) + 1}{n' + r - c} \rightarrow y' = \frac{r_{n'} + r + 1 + r_{n'} - r}{n' - 1} \Rightarrow y' = \frac{r_{n'} + r}{n' - 1} \quad (1, 0)$$

$$b) \left. \begin{array}{l} n' = n - r \rightarrow n = n' + r \\ y' = y - r \rightarrow y = y' + r \end{array} \right\} \rightarrow y' + r = \frac{r(n' + r) + 1}{n' + r - c} \rightarrow y' = \frac{r_{n'} + r - r_{n'}}{n'} \Rightarrow y' = \frac{-r_{n'}}{n'} \\ y' = \frac{r}{n'}$$

$$10. \begin{cases} rx + fy = r \\ n - ay = 1 \end{cases}$$

$$a) \left\{ \begin{array}{l} rx + fy = r \\ (n - ay = 1) \times r \end{array} \right\} \Rightarrow \begin{array}{l} rx + fy = r \\ rn - ray = r \end{array} \rightarrow ray = -1 \Rightarrow y = -\frac{1}{ra} \Rightarrow x = \frac{1f}{1a} \quad (5)$$

$$b) x = -\frac{f+10}{-10-f} = \frac{1f}{1a} \quad y = \frac{r-r}{-1a} = -\frac{1}{1a}$$