

19, 10

دراسة عادية

(الف-1)

$$m = \frac{y_A - y_B}{x_A - x_B} = \frac{r - (-r)}{e - 0} = -r$$

$$y - y_A = m(x - x_A) = y - r = -r(x - e) \rightarrow y = -rx + 14r$$

$$y = -rx + 14$$

$$rx + 4y = 1 \rightarrow m = -\frac{r}{4} = -r$$

$$y - y_A = m(x - x_A) = y - r = -r(x - e) \rightarrow y = -rx + 14$$

$$x + 4y = 1 \rightarrow m = -\frac{1}{4} \rightarrow m' = r$$

$$y - y_A = m(x - x_A) \rightarrow y - r = r(x - e) \rightarrow y = rx - 14$$

$$\tan \theta = m \rightarrow m = \tan \frac{\pi}{4} = 1$$

$$y - y_A = m(x - x_A) \rightarrow y - r = 1(x - e) \rightarrow y = x - r + r$$

$$d = \sqrt{(x_A - x_B)^2 + (y_A - y_B)^2} = \sqrt{(1 - (-1))^2 + (r - r)^2} = \sqrt{4} = 2$$

$$d = \frac{|ax_A + by_A + c|}{\sqrt{a^2 + b^2}} = \frac{|rx + 4y - r|}{\sqrt{r^2 + 16}} = \frac{14r - r}{\sqrt{r^2 + 16}} = \frac{13r}{\sqrt{r^2 + 16}}$$

$$rx + 4y = 1 \rightarrow rx + 4y = 14 \rightarrow rx + 4y = \frac{14}{r} = 1$$

$$rx + 4y = 14 \rightarrow rx + 4y - 14 = 0$$

$$d = \frac{|c - c'|}{\sqrt{a^2 + b^2}} = \frac{|14 - 1|}{\sqrt{r^2 + 16}} = \frac{13}{\sqrt{r^2 + 16}} = \frac{r}{\sqrt{r^2 + 16}} \times \frac{\sqrt{r^2 + 16}}{\sqrt{r^2 + 16}} = \frac{r\sqrt{r^2 + 16}}{r^2 + 16}$$

$$d_1: r_m + r_y = r \rightarrow m = -\frac{r}{r}$$

$$d_2: r_m - r_y = 1 \rightarrow m = \frac{r}{r}$$

$$\frac{|r_m + r_y - r|}{\sqrt{1+r^2}} = \frac{|r_m - r_y - 1|}{\sqrt{1+r^2}}$$

$$m + r = \frac{r}{r} = 1$$

$$8x + y = r$$

$$\tan \alpha = \frac{|m - m'|}{1 + mm'} = \tan \alpha = \frac{|r - (-r)|}{1 - r^2} = 1$$

$$d = y = r_m + d \rightarrow m = r$$

$$\alpha = 45^\circ$$

$$d' = y = -r_m + r \rightarrow m = -r$$

$$\beta = 135^\circ$$

$$d = \sqrt{(x_A - x_B)^2 + (y_A - y_B)^2} = \sqrt{(r - (-r))^2 + (1 - (-1))^2} = \sqrt{16} = 4$$

$$M \begin{cases} \frac{x_A + x_B}{r} = -1 \\ \frac{y_A + y_B}{r} = 1 \end{cases} \quad M(-1, 1)$$

$$(1, \sqrt{0})$$

$$C \begin{cases} \frac{x_A + x_B + x_C}{r} = \frac{-1 - r + r}{r} = \frac{-1}{r} = -r \\ \frac{y_A + y_B + y_C}{r} = \frac{-1 + r + 1}{r} = \frac{r}{r} = r \end{cases}$$

$$C(-r, r)$$

$$\begin{bmatrix} -1 & -r & r \\ -1r & r & 1 \\ 1 & 1 & 1 \end{bmatrix} = \begin{vmatrix} -1 & -r & r \\ -1r & r & 1 \\ 1 & 1 & 1 \end{vmatrix} = 1 - r - r^2 - r^2 - r + 1 = 99$$

$$99 \div r = r_1$$

$$\begin{cases} 7x + 4y = 7 \\ (x - 8y = 1) \end{cases} \xrightarrow{(-4) \times} \begin{cases} 7x + 4y = 7 \\ -x + 8y = -4 \end{cases} \rightarrow 12y = -1$$

(الف) (1)

$$x + \frac{8}{12} = 1 \rightarrow x = \frac{16}{12}$$

$$y = \frac{-1}{12}$$

(1)

$$7x + 4y = 7$$

$$x - 8y = 1$$

$$x = -\frac{16}{-12} \rightarrow y = \frac{1}{-12}$$

(ب)

$$x = \frac{16}{12}$$

$$x = -\frac{\begin{vmatrix} 7 & 4 \\ 1 & -8 \end{vmatrix}}{\begin{vmatrix} 7 & 4 \\ 1 & -8 \end{vmatrix}} = -\frac{7(-8) - 4(1)}{7(-8) - 4(1)} = -\frac{-56 - 4}{-56 - 4} = -\frac{-60}{-60} = 1$$

نحل

$$y = \frac{\begin{vmatrix} 7 & 7 \\ 1 & 1 \end{vmatrix}}{\begin{vmatrix} 7 & 4 \\ 1 & -8 \end{vmatrix}} = \frac{7(1) - 7(1)}{7(-8) - 4(1)} = \frac{0}{-56 - 4} = \frac{0}{-60} = 0$$

$$-y = \frac{r_{n+1}}{t_{n+1}}$$

(الف) (2)

$$y = \frac{-r_{n+1}}{-t_{n+1}}$$

(5)

$$n = \frac{ry+1}{ty-r} = tyx-rx = ry+1$$

(ج)

$$(tm-r)y = r_{n+1} = y = \frac{r_{n+1}}{tm-r}$$

$$-n = \frac{-ry+1}{-ty-r}$$

$$n = \frac{-ry+1}{ty+r} \rightarrow tny+rn = -ry+1$$

(6)

$$y = \frac{-r_{n+1}}{t_{n+1}}$$

$$y' = y+r$$

$$n' = n-r \rightarrow n = n'+r$$

(الف) (4)

$$y = y-r$$

$$y'-r = \frac{r(n'+r)+1}{(n'+r)-r} \rightarrow y'-r = \frac{rn'+1}{n'-1}$$

(5)

$$y' = \frac{rn'+1+rn'-r}{n'-1} = \frac{2n'+1}{n'-1}$$

$$y' = y-r$$

$$n' = n-r \rightarrow n = n'+r$$

(ج)

$$y = y'+r$$

$$y'+r = \frac{r(n'+r)+1}{(n'+r)-r} = \frac{rn'+1}{n'}$$

$$y' = \frac{rn'+1-rn'}{n'} = \frac{1}{n'}$$