

۱- (۲) $y = ax + b \rightarrow a = \frac{dy}{dx} = \frac{2 - (-2)}{4 - 0} = \frac{4}{4} = 1$

$\rightarrow y = 1x + b \rightarrow 2 = 1(4) + b \rightarrow b = -2 \rightarrow y = x - 2$ ✓

۲) $2y + 4x + C = 0 \rightarrow 2(2) + 4(4) + C = 0 \rightarrow C = -24$

$\rightarrow 2y + 4x - 24 = 0$ ✓

۳) $x + 3y = 1 \rightarrow a = -\frac{1}{3} \rightarrow a' = 3 \rightarrow y = 3x + b \rightarrow 2 = 1 + b \rightarrow b = 1 \rightarrow y = 3x + 1$ ✓

۴) $\tan \frac{\theta}{2} = \left| \frac{m - m_1}{1 + m m_1} \right| \rightarrow \sqrt{3} = m \rightarrow y = \sqrt{3}x + b$

$\rightarrow 2 = \sqrt{3} + b \rightarrow b = 2 - \sqrt{3} \rightarrow y = \sqrt{3}x + 2 - \sqrt{3}$ ✓

۵) $\sqrt{\frac{(2 - (-1))^2}{9} + \frac{(3 - 1)^2}{16}} = 1$ ✓

۶) $\frac{|(12 \times 2) + (4 \times 3) - 3|}{\sqrt{9 + 16}} = \frac{4 + 12 - 3}{5} = 3$ ✓

$$1) \quad rx + 4y = 1 \xrightarrow{\text{why}} rx + 4y = r \quad (r) - r$$

$$rx + 4y = 4$$

$$\text{do: } rx + 4y - \frac{r \cdot 4}{r} = rx + 4y - 4 \quad \checkmark$$

$$\therefore \frac{|-4 - (-r)|}{\sqrt{r+4}} = \frac{r}{\sqrt{1r}} \quad \checkmark$$

$$\frac{|rx - ry - 1|}{\sqrt{1r}} = \frac{|rx + 4y - r|}{\sqrt{1r}} \quad (r) - r$$

$$rx - ry - 1 = rx + 4y - r \rightarrow x - 4y + r = 0 \quad \checkmark$$

$$rx - ry - 1 = -rx - 4y + r \rightarrow 4x + 4y - r = 0 \quad \checkmark$$

$$a = -r, a' = r \rightarrow \tan \theta = \left| \frac{-r - r}{1 - 4} \right| = 1 \quad -1 \quad (r)$$

$$\rightarrow \tan \theta = 1 \rightarrow \theta = 45^\circ \quad \checkmark$$



$$4) - (2) \quad \sqrt{\frac{(-8-3)^2}{44} + \frac{(4-(-2))^2}{36}} \leq 10 \quad \checkmark$$

$$5) \quad \frac{-4+3}{2} \leq x \leq -1 \rightarrow \frac{4-2}{2} \leq y \leq 1 \rightarrow \begin{vmatrix} -1 \\ 1 \end{vmatrix} \quad \checkmark$$

$$6) \quad \frac{-10-2+3}{3} \leq x \leq -3, \quad y \leq \frac{-13+3+1}{3} \leq -3 \quad \checkmark$$

$$\begin{vmatrix} -3 \\ 3 \end{vmatrix} \quad \checkmark$$

$$7) \quad S \leq \frac{1}{2} \begin{vmatrix} -10 & -13 & 1 \\ -2 & 3 & 1 \\ 3 & 1 & 1 \end{vmatrix} \leq \frac{1}{2} (9+24-10-(-30-39-2))$$

$$\leq \frac{1}{2} (94+41) \quad \checkmark$$

$$8) \quad -y \leq \frac{2x+1}{4x-3} \rightarrow y \leq \frac{-2x-1}{4x-3} \quad \checkmark \quad (2) \quad \Lambda$$

$$9) \quad y \leq \frac{-2x+1}{-4x-3} \quad \checkmark$$

$$10) \quad x \leq \frac{2y+1}{4y-3} \rightarrow y \leq \frac{2x+1}{4x-3} \quad \checkmark$$

$$11) \quad -x \leq \frac{-2y+1}{-4y-3} \rightarrow y \leq \frac{2x-1}{-4x-3} \quad \checkmark$$

(2)

$$\text{Sol) } x' \leq x-2 \rightarrow x \leq x'+2$$

$$y' \leq y+3 \rightarrow y \leq y'-3$$

$$y'-3 \leq \frac{2(x'+2)+1}{x'+2-3} \leq \frac{2x'+5}{x'-1} \leq \frac{2x'+4}{x'-1}$$

$$\rightarrow y' \leq \frac{2x'+4}{x'-1} + 3 \leq \frac{2x'+4 + 3x' - 3}{x'-1} \leq \frac{5x'+1}{x'-1} \checkmark$$

$$\therefore) x' \leq x-3 \rightarrow x \leq x'+3 \rightarrow y'+3 \leq \frac{2(x'+3)+1}{(x'+3)-3}$$

$$y' \leq y-2 \rightarrow y \leq y'+2$$

$$\rightarrow y'+3 \leq \frac{2x'+7+1}{x'} \leq \frac{2x'+8}{x'} \rightarrow y' \leq \frac{2x'+8}{x'} - 3$$

$$y' \leq \frac{2x'+8-3x'}{x'} \leq \frac{-x'+8}{x'} \checkmark$$

$$d) 3x+4y \leq 2 \rightarrow 3x+4y \leq 2$$

(2)

- 10

$$(x-4y \leq 1) \times 3 \rightarrow 3x-12y \leq 3$$

$$19y \leq -1 \rightarrow y \leq \frac{-1}{19} \rightarrow x \leq \frac{19}{19}$$

$$\therefore) x \leq \frac{2-(-10)}{-14-(4)} \leq \frac{12}{-18} \rightarrow y \leq \frac{3-2}{-14-3} \leq \frac{-1}{-17}$$