

Theta Individual Ciphering Solutions

① $x(x-3) = 2(x-2)$
 $x^2 - 5x + 4 = 0$
 $(x-4)(x-1) = 0$
 $x=4$ ~~$x=1$~~

① $x=4$

② $[(2+i-1)^2]^2 = [(1+i)^2]^2$
 $= [2i]^2$
 $= -4$

② -4

③ $y = 1 + \frac{2}{y}$
 $y^2 - y - 2 = 0$
 $(y-2)(y+1) = 0$
 $y=2$ ~~$y=-1$~~

③ $y=2$

④ C(-2,1) P(2,-2)
 $m_r = \frac{3}{-4} \therefore m_t = \frac{4}{3}$

④ $a+b = -\frac{7}{6}$

$3y - 4x = -14$
 $-\frac{14}{3} + \frac{7}{2} = \frac{-28+21}{6} = -\frac{7}{6}$

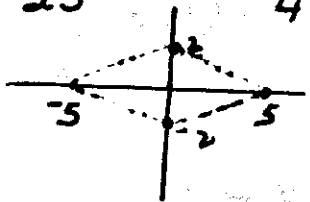
⑤ $A \begin{bmatrix} 1 & 2 \\ -2 & 3 \end{bmatrix} = \begin{bmatrix} -2 & 3 \\ -3 & 1 \end{bmatrix}$
 $A = \begin{bmatrix} -2 & 3 \\ -3 & 1 \end{bmatrix} \frac{1}{7} \begin{bmatrix} 3 & -2 \\ 2 & 1 \end{bmatrix}$
 $A = \frac{1}{7} \begin{bmatrix} 0 & 7 \\ -11 & 5 \end{bmatrix}$

⑤ $\frac{1}{7}$

$\frac{1}{7}$

$$4(x^2 - 2x + 1) + 25(y^2 + 4y + 4) = 100$$

$$\frac{(x-1)^2}{25} + \frac{(y+2)^2}{4} = 1$$



$$A = \frac{1}{2} d_1 d_2$$

$$A = \frac{1}{2} \cdot 10 \cdot 4$$

$$A = 20$$

$$\textcircled{6} A = 20$$

$$\textcircled{7} f(x) + 2f(6-x) = x$$

$$\left[\begin{array}{l} f(1) + 2f(5) = 1 \\ 2f(1) + f(5) = 5 \end{array} \right.$$

$$3f(1) = 9$$

$$f(1) = 3$$

$$f(1) = 3$$

$$\textcircled{7} f(1) = 3$$

$$\textcircled{8} \text{ Odds for A } \frac{1}{4} \rightarrow P(A) = \frac{1}{5}$$

$$\text{Odds for B } \frac{1}{9} \rightarrow P(B) = \frac{1}{10}$$

$$P(C) = 1 - P(A \text{ or } B)$$

$$P(C) = 1 - \left(\frac{1}{5} + \frac{1}{10} \right)$$

$$P(C) = \frac{7}{10}$$

$$\text{Odds (C)} = \frac{7}{3}$$

$$\textcircled{8} \frac{7}{3}$$

$$\textcircled{9} \left[\begin{array}{l} \frac{1}{A} + \frac{1}{B} = \frac{1}{20} \\ \frac{1}{B} + \frac{1}{C} = \frac{1}{15} \\ \frac{1}{A} + \frac{1}{C} = \frac{1}{12} \end{array} \right.$$

$$-\frac{2}{C} = \frac{-1}{10}$$

$$C = 20$$

$$\left[\begin{array}{l} \frac{1}{A} - \frac{1}{C} = \frac{1}{20} - \frac{1}{15} \\ \frac{1}{A} + \frac{1}{C} = \frac{1}{12} \end{array} \right.$$

$$\frac{1}{A} + \frac{1}{C} = \frac{1}{12}$$

$$-\frac{2}{C} = \frac{1}{20} - \frac{1}{15} - \frac{1}{12}$$

$$\textcircled{9} C = 20$$

$$\begin{aligned} \textcircled{9} \quad 3x^2 - 7x + 2 - y(x-2) &= \\ (3x-1)(x-2) - y(x-2) &= \\ (x-2)(3x-1-y) &= \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad (x-2)(3x-1-y) &\text{ or } \\ (2-x)(1-3x+y) & \end{aligned}$$

$$\textcircled{11} \quad 2^{2x+4} = 2^{2x-56}$$

$$\begin{aligned} 10x &= 60 \\ x &= 6 \end{aligned}$$

$$\textcircled{11} \quad x = 6$$

$$\textcircled{12} \quad (15) \sqrt{15} \sqrt[4]{15} \sqrt[8]{15} \sqrt[16]{15} \dots \quad \textcircled{12} \quad 225$$

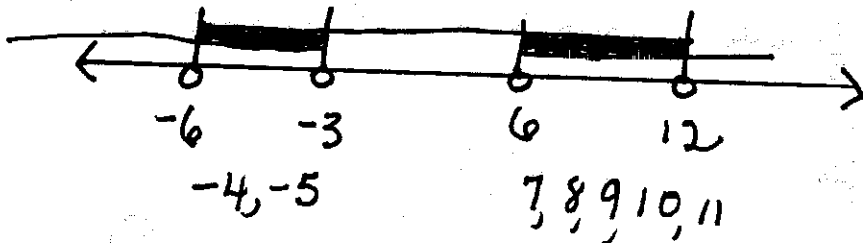
$$15^{1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots}$$

$$S_n = \frac{a}{1-r} = \frac{1}{1-\frac{1}{2}} = 2$$

$$\therefore 15^2 = 225$$

$$\textcircled{13} \quad -9 < x-3 < 9 \text{ and } 2x-3 > 9 \text{ or } 2x-3 < -9$$

$$-6 < x < 12 \text{ and } x > 6 \text{ or } x < -3$$



$$\textcircled{13} \quad 7$$

$$\begin{array}{l} \textcircled{14} \quad \begin{array}{l} \text{F} \quad \quad \quad \text{T} \\ \text{S} \quad 110\% \text{T} \\ \text{J} \quad 121\% \text{T} \\ \text{S} \quad 133\% \text{T} \end{array} \end{array}$$

$$\begin{array}{l} \text{Incras} = \\ 33\% \end{array}$$

$$\textcircled{14} \quad 33\%$$