

①

数学 C 2017 リポート 1回目

問 次の1次方程式を解け.

$$x_1 + x_3 + 2x_4 = 6$$

$$-2x_1 + x_2 + 4x_3 + x_4 = 3$$

$$4x_1 - 3x_2 - 4x_3 + x_4 = -3$$

$$-x_1 + x_2 + 2x_3 + x_4 = 4$$

$$x_1 = \boxed{(1)}$$

$$x_4 = \boxed{(2)}$$

$$\left(\begin{array}{cccc|c} 1 & 0 & 1 & 2 & 6 \\ -2 & 1 & 4 & 1 & 3 \\ 4 & -3 & -4 & 1 & -3 \\ -1 & 1 & 2 & 1 & 4 \end{array} \right)$$

→
 ② + 2 × ①
 ③ - 4 × ①
 ④ + ①

$$\left(\begin{array}{cccc|c} 1 & 0 & 1 & 2 & 6 \\ 0 & 1 & 6 & 5 & 15 \\ 0 & -3 & -8 & -7 & -27 \\ 0 & 1 & 3 & 3 & 10 \end{array} \right)$$

→
 ② - ④
 ③ + 3 × ④

$$\left(\begin{array}{cccc|c} 1 & 0 & 1 & 2 & 6 \\ 0 & 0 & 3 & 2 & 5 \\ 0 & 0 & 1 & 2 & 3 \\ 0 & 1 & 3 & 3 & 10 \end{array} \right)$$

→
 ① - ③
 ② - 3 × ③
 ④ - 3 × ③

$$\left(\begin{array}{cccc|c} 1 & 0 & 0 & 0 & 3 \\ 0 & 0 & 0 & -4 & -4 \\ 0 & 0 & 1 & 2 & 3 \\ 0 & 1 & 0 & -3 & 1 \end{array} \right)$$

→
 ② × (-1/4)

$$\left(\begin{array}{cccc|c} 1 & 0 & 0 & 0 & 3 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 2 & 3 \\ 0 & 1 & 0 & -3 & 1 \end{array} \right)$$

→
 ③ - 2 × ②
 ④ + 3 × ②

$$\left(\begin{array}{cccc|c} 1 & 0 & 0 & 0 & 3 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 0 & 4 \end{array} \right)$$

→

$$\left(\begin{array}{cccc|c} 1 & & & & 3 \\ & 1 & & & 4 \\ & & 1 & & 1 \\ & & & 1 & 1 \end{array} \right)$$

$$\lambda_1 = 3, \lambda_2 = 4, \lambda_3 = 1, \lambda_4 = 1$$

$$\boxed{(1)} = \lambda_1 = 3$$

$$\boxed{(2)} = \lambda_4 = 1$$