$$2) \begin{cases} x_1 + 2x_2 + 3x_3 - 2x_4 = 6, \\ 2x_1 - x_2 - 2x_3 - 3x_4 = 8, \\ 3x_1 + 2x_2 - x_3 + 2x_4 = 4, \\ 2x_1 - 3x_2 + 2x_3 + x_4 = -8; \end{cases}$$

19.(2)

$$\therefore D = \begin{vmatrix} 1 & 2 & 3 & -2 \\ 2 & -1 & -2 & -3 \\ 3 & 2 & -1 & 2 \\ 2 & -3 & 2 & 1 \end{vmatrix} = \begin{vmatrix} 1 & 2 & 3 & -2 \\ 0 & -5 & -8 & 1 \\ 0 & -4 & -10 & 8 \\ 0 & -7 & -4 & 5 \end{vmatrix} = \begin{vmatrix} -5 & -8 & 1 \\ -4 & -10 & 8 \\ -7 & -4 & 5 \end{vmatrix}$$

$$= 250 + 64 \times 7 + 16 - 70 - 160 - 160$$

$$= 324$$

$$D_1 = \begin{vmatrix} 6 & 2 & 3 & -2 \\ 8 & -1 & -2 & -3 \\ 4 & 2 & -1 & 2 \\ -8 & -3 & 2 & 1 \end{vmatrix} = 324$$

$$D_2 = \begin{vmatrix} 1 & 2 & 3 & -2 \\ 2 & -1 & -2 & -3 \\ 3 & 2 & -1 & 2 \\ 2 & -3 & 2 & 1 \end{vmatrix} = 648$$

$$D_3 = \begin{vmatrix} 1 & 2 & 3 & -2 \\ 2 & -1 & -2 & -3 \\ 3 & 2 & -1 & 2 \\ 2 & -3 & 2 & 1 \end{vmatrix} = -324$$

$$D_4 = \begin{vmatrix} 1 & 2 & 3 & -2 \\ 2 & -1 & -2 & -3 \\ 3 & 2 & -1 & 2 \\ 2 & -3 & 2 & 1 \end{vmatrix} = -648$$

$$\therefore x_1 = \frac{D_1}{D} = 1, x_2 = \frac{D_2}{D} = 2, x_3 = \frac{D_3}{D} = -1, x_4 = \frac{D_4}{D} = -2$$