

$$\begin{pmatrix} 3i & 1 & -8-9i \\ 3 & -6-4i & 5i-2 \\ -2+i & -2+2i & -6-5i \end{pmatrix}$$

c)

$$\begin{pmatrix} 4i-2 & -4 & -10-6i \\ 2i+4 & -6-8i & 6i \\ -6 & -4+2i & -8-2i \end{pmatrix} \ominus$$

$$\begin{pmatrix} i-2 & -5 & -2+3i \\ 2i+1 & -4i & i+2 \\ -4-i & -2 & -2+3i \end{pmatrix}$$

$$1) \quad a) \quad \begin{pmatrix} 13 & 2 \\ -12 & -7 \end{pmatrix}$$

$$b) \quad \begin{pmatrix} 20 & 32 & 14 & 34 \\ -22 & 30 & 24 & -20 \\ 30 & 8 & -34 & 18 \end{pmatrix}$$

$$A=2 \quad \left(\begin{array}{c} 1 \\ 2 \\ 3 \\ 6 \end{array} \right) \left| \begin{array}{l} 2x_1 - x_2 = 4x_4 - 8 \\ 2x_1 + x_2 = 2x_4 + 4 \\ 3x_3 + x_4 = 3x_1 - 5 \\ 6x_4 - x_1 = 7x_2 + 5 \end{array} \right|$$

$$\left| \begin{array}{l} -x_1 - 7x_2 + 0x_3 + 6x_4 = 5 \\ 2x_1 - x_2 + 0x_3 - 4x_4 = -8 \\ 2x_1 + x_2 + 0x_3 - 2x_4 = 4 \\ -3x_1 + 0x_2 + 3x_3 + x_4 = -5 \end{array} \right| \begin{array}{l} 1.2) \\ 1.2) \\ 1.(-3) \end{array} \left. \begin{array}{l} + \\ + \\ + \end{array} \right\} \text{Pivot}$$

$$\left| \begin{array}{l} -x_1 - 7x_2 + 0x_3 + 6x_4 = 5 \\ 0 \quad -15x_2 + 0x_3 + 8x_4 = 2 \\ 0 \quad -13x_2 + 0x_3 + 10x_4 = 14 \\ 0 \quad 21x_2 + 3x_3 - 17x_4 = -20 \end{array} \right|$$

↑↑

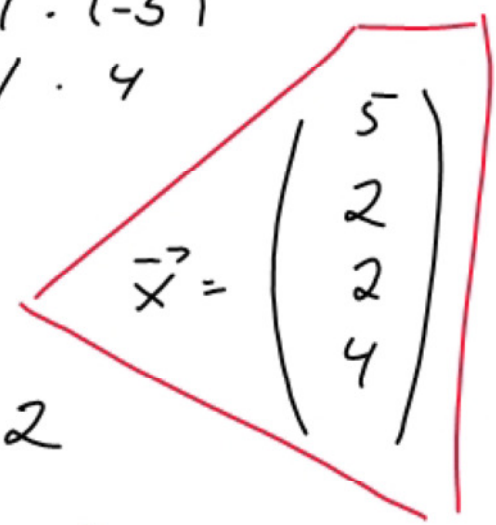
$$\left| \begin{array}{cccc|l} -x_1 & -7x_2 & +0x_3 & +6x_4 & = 5 \\ 0 & 21x_2 & +3x_3 & -17x_4 & = -20 \\ 0 & -15x_2 & 0 & +8x_4 & = 2 \\ 0 & -13x_2 & 0 & +10x_4 & = 14 \end{array} \right. \begin{array}{l} \\ \\ \leftarrow 1 \cdot (-5) \\ 1 \cdot 4 \end{array}$$

$$\begin{aligned} 75x_2 - 40x_4 &= -10 \\ -52x_2 + 40x_4 &= 56 \end{aligned}$$

$$23x_2 = 46$$

$$x_2 = 2$$

$$\begin{aligned} -30 + 8x_4 &= 2 \\ x_4 &= 4 \end{aligned}$$



$$\underline{\text{II}} \quad 42 + 3x_3 - 68 = -20$$

$$3x_3 = 6 \quad x_3 = 2$$

$$\underline{\text{I}} \quad -x_1 - 14 + 24 = 5$$

$$x_1 = 5$$

$$\begin{pmatrix} 3 & 1 & 5 & 2 \\ 2 & 3 & 0 & 1 \\ 1 & 2 & 1 & 0 \end{pmatrix} \cdot \begin{pmatrix} 2 & 1 \\ 1 & 0 \\ 1 & 1 \\ 3 & 3 \end{pmatrix}$$

$$\begin{pmatrix} 6+1+5+6 & 3+0+5+6 \\ 4+3+0+3 & 2+0+0+3 \\ 2+2+1+0 & 1+0+1+0 \end{pmatrix} = \begin{pmatrix} 18 & 14 \\ 10 & 5 \\ 5 & 2 \end{pmatrix}$$

$$\begin{pmatrix} 18 & 14 \\ 10 & 5 \\ 5 & 2 \end{pmatrix} \begin{pmatrix} 1 & 0 & 1 \\ 2 & 2 & 2 \end{pmatrix} = \begin{pmatrix} 18+28 & 0+28 & 18+28 \\ 10+10 & 0+10 & 10+10 \\ 5+4 & 0+4 & 5+4 \end{pmatrix}$$

$$\Rightarrow \begin{pmatrix} 46 & 28 & 46 \\ 20 & 10 & 20 \\ 9 & 4 & 9 \end{pmatrix}$$

$$d) \text{Det}(A) = 44$$

$$b) \frac{1}{14} \cdot \begin{pmatrix} \frac{1}{2} & -\frac{3}{2} & \frac{2}{3} \\ 6 & 1 & -3 \\ \frac{3}{4} & -\frac{3}{2} & \frac{4}{3} \end{pmatrix} = \frac{1}{14} \cdot \frac{1}{3} \begin{pmatrix} \frac{1}{2} & -\frac{3}{2} & 2 \\ 6 & 1 & -9 \\ \frac{3}{4} & -\frac{3}{2} & 4 \end{pmatrix}$$

$$\frac{1}{14} \cdot \frac{1}{3} \cdot \frac{1}{2} \cdot \frac{1}{4} \cdot \begin{pmatrix} 1 & -3 & 4 \\ 6 & 1 & -9 \\ 3 & -6 & 16 \end{pmatrix}$$

$$\frac{1}{96} \cdot \left\{ \begin{array}{l} 16 + 81 - 144 \\ \ominus \\ 12 - 288 + 154 \end{array} \right\} = \frac{1}{96} \cdot (-47 \ominus 1 - 222)$$

$$\Rightarrow \frac{175}{96}$$