Es: $\begin{cases} 2x_1 + 4x_2 - 3x_3 = 5 \\ 4x_2 + 4x_3 = 0 \end{cases}$

Sol.: $\begin{pmatrix} -5/2 \\ 0 \\ 0 \end{pmatrix} + \left\langle \begin{pmatrix} -7/2 \\ -1 \\ 1 \end{pmatrix} \right\rangle$

Es: $\begin{cases} 3x_1 - x_2 + 3x_3 = 2 \\ -3x_1 + 4x_2 + 4x_3 = -5 \end{cases}$

Sol.: $\begin{pmatrix} 1/3 \\ -1 \\ 0 \end{pmatrix} + \left\langle \begin{pmatrix} -16/9 \\ -7/3 \\ 1 \end{pmatrix} \right\rangle$.

Es: $\begin{cases} -ix_1 + (2+2i)x_2 + 2x_3 = 3 \\ (1-i)x_2 + (-1+3i)x_3 = 1+i \end{cases}$

Sol.: $\begin{pmatrix} 2+5i \\ i \\ 0 \end{pmatrix} + \left\langle \begin{pmatrix} 2-8i \\ 2-i \\ 1 \end{pmatrix} \right\rangle$

Es: $\begin{cases} (-2-2i)x_1 - 2ix_2 = -3-3i \\ (3-3i)x_1 + (3+i)x_2 + (-3+i)x_3 = -3i \end{cases}$

Sol.: $\begin{pmatrix} 3-3i \\ \frac{3}{2} + \frac{9}{2}i \\ 0 \end{pmatrix} + \left\langle \begin{pmatrix} -1+2i \\ -1-3i \\ 1 \end{pmatrix} \right\rangle$.

Numeri complessi

Calcolare:

Sol.

1) $(2+2i)(2-2i)$ — 8

2) $(3+i)^{-1}$ — $\frac{3}{10} - \frac{1}{10}i$

3) $2\,(2i)^{-1}$ — $-i$

4) $\dfrac{-3-3i}{-2-i}$ — $\frac{9}{5} + \frac{3}{5}i$

5) $\dfrac{2+2i}{-3-i}$ — $-\frac{4}{5} - \frac{2}{5}i$

6) $\dfrac{\overline{1+i}}{-i}$ — $1+i$

7) $\dfrac{\overline{-1}}{-3+3i}$ — $\frac{1}{6} + \frac{1}{6}i$

8) $\dfrac{\overline{-2-3i}}{-1-2i}$ — $-\frac{4}{5} - \frac{7}{5}i$