

Soluție

1.a) $B + B^t = A - A^t + A^t - A = 0_3$

1.b) $\det B = (-1)^3 \det B \Rightarrow \det B = 0$

1.c) Dacă $x + y = 0 \Rightarrow y = -x \Rightarrow B = x(A - A^t) \Rightarrow \det B = 0$

2.a) $x(x^2 + 1) = 0 \Rightarrow x_1 = 0, x_2 = i, x_3 = -i$

2.b) $i(p + 2) + p + q - 2 = 0, p, q \in \mathbb{R} \Rightarrow p = -2, q = 4$

$$S_n = x_1^n + x_2^n + x_3^n, n \in \mathbb{N}. S_n = -pS_{n-2} - qS_{n-3}, \forall n \geq 3$$

2.c) $S_0 = 3, S_1 = 0, S_2 = -2p, S_3 = -3q, S_4 = 2p^2, S_5 = 5pq$

$$S_6 = -2p^3 + 3q^2, S_7 = -7p^2q$$