Exercise 9

Task 1. Describe the general structure and data content of a GPS signal.

Task 2. List the main differences between GPS and Galileo signals.

Task 3. Describe the processing procedures required in a GPS receiver. Explain in particular the different purposes and mechanism of acquisition and tracking.

Task 4. The pseudorange measurement results obtained by a GNSS receiver from three currently visible satellites are $\rho_1 = 3$**,** $\rho_2 = 2$ **and** $\rho_3 = 3$**. The received ephemeris data provide the following satellite positions (for simplicity, given as two-dimensional only):** $x_1 = (0, 0)$, $x_2 = (2,3)$ and $x_3 = (5,0)$.

a) **Derive the user position estimation using the trilateration procedure.**

b) **List the most common sources of error that can affect the estimation.**