1. Give formulas (in terms of the usual power functions) for the polynomial pieces corresponding to the B-spline of order 4

\[ B(\cdot|0, 0, 1, 3, 6). \]

2. Create a MATLAB program that determines whether the Schoenberg-Whitney conditions are met, given \( k \), knot sequence \( t \) of length \( n + k \) and a sequence of data sites \( \tau \) of length \( n \). Your program should order the sequences first. Run it on 2–3 examples of your choice.

3. Create a MATLAB program to generate and plot a Bézier curve. Construct the program so that it accepts control points as \( N \times 2 \) matrices whose first (second) column lists \( x- \) (\( y- \)) coordinates of the control points. Run it on control points

\[
\begin{bmatrix}
7 & 0 \\
4 & -3 \\
2 & -1 \\
0 & 0
\end{bmatrix}, \quad \begin{bmatrix}
3 & 0 \\
4 & -1 \\
5 & -2 \\
6 & 1 \\
1 & 11
\end{bmatrix}.
\]