This file contains codes for generating Figure 1 in Section 1 and Figure 3 in Section 7.1 in the paper “On the Distribution of Weighted Sum of Two Chi-squares with Applications to Shape Analysis”.

The codes have been divided into three chunks with indices ranged from 1 to 3.

**Code chunk 1** contains codes for generating the rectangle in Figure 1 in Section 1. This chunk is divided into three sub-chunks.

1. The chunk 1.1 involves codes to generate the original configuration which is displayed in solid lines in Figure 1.
2. The chunk 1.2 involves codes to register (rotate and translate) the configuration.
3. The chunk 1.3 involves codes to plot both origin and registered configurations.

**Code chunk 2** contains codes for generating the symmetric example in Figure 3 in Section 7.1. This chunk is divided into three sub-chunks.

1. The chunk 2.1 involves codes to generate the rectangle.
2. The chunk 2.2 involves codes to rotate and translate the rectangle, so that landmarks 1 and 2 are on the x-axis and the midline is orthogonal to the line segment connecting landmarks 1 and 2 and passes through the midpoint of this line segment.
3. The chunk 2.3 involves codes to plot both origin and reflected configurations.

**Code chunk 3** contains codes for generating the asymmetric example in Figure 3 in Section 7.1. This chunk is divided into three sub-chunks.

1. The chunk 3.1 involves codes to generate the quadrilateral.
2. The chunk 3.2 involves codes to rotate and translate the quadrilateral, so that landmarks 1 and 2 are on the x-axis and the midline is orthogonal to the line segment connecting landmarks 1 and 2 and passes through the midpoint of this line segment.
3. The chunk 3.3 involves codes to plot both origin and reflected configurations.