1. Plot the point \(A(0, 0)\) and \(B(12, 0)\). A third point \(C\) in the first quadrant makes angles \(\angle ABC = 105^\circ\) and \(\angle BAC = 30^\circ\).
   a) Determine angle \(\angle ACB\)
   b) Determine the distance \(BC\).
   c) Determine the perpendicular distance from \(B\) to the line segment \(\overline{AC}\).

2. Plot the point \(A(2, 1)\) and \(B(6, 1)\). A third point \(C\) in the first quadrant makes angles \(\angle ABC = 75^\circ\) and \(\angle BAC = 60^\circ\).
   a) Determine angle \(\angle ACB\)
   b) Determine the distance \(BC\).
   c) Determine the perpendicular distance from \(C\) to the line segment \(\overline{AB}\).

3. Plot the point \(A(1, 2)\) and \(B(9, 2)\). A third point \(C\) in the first quadrant makes angles \(\angle ABC = 120^\circ\) and \(\angle BAC = 30^\circ\).
   a) Determine angle \(\angle ACB\)
   b) Determine the distance \(AC\).
   c) Determine the perpendicular distance from \(C\) to the line segment \(\overline{AB}\).

4. Plot the point \(A(2, 4)\) and \(B(8, 4)\). A third point \(C\) in the first quadrant makes angles \(\angle ABC = 75^\circ\) and \(\angle BAC = 60^\circ\).
   a) Determine angle \(\angle ACB\)
   b) Determine the distance \(BC\).
   c) Determine the perpendicular distance from \(B\) to the line segment \(\overline{AC}\).

5. Plot the point \(A(1, 2)\) and \(B(3, 2)\). A third point \(C\) in the first quadrant makes angles \(\angle ABC = 120^\circ\) and \(\angle BAC = 45^\circ\).
   a) Determine angle \(\angle ACB\)
   b) Determine the distance \(AC\).
   c) Determine the perpendicular distance from \(C\) to the line containing points \(A\) and \(B\).
   d) Determine the \(y\)-coordinate of point \(C\).