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$\alpha, \beta, \gamma, \delta$ are the solutions of

$$x^4 + ax^3 + bx^2 + cx + \frac{b^2}{3} = 0 \ (a, b, c \text{ are complex numbers})$$

In the complex plane, four points $A(\alpha), B(\beta), C(\gamma), D(\delta)$ are vertices of a rectangle which is inscribed in a circle $|z| = 1$.

1. Evaluate a and c.

2. Find the angle formed by two diagonals of the rectangle $ABCD$.

3. Find the sides of the rectangle $ABCD$.