These questions relate to lecture material and aim to highlight the most important concepts. We will cover questions similar to these for our midterm.

1. Verify that multiplying the quaternion i= [0, (1,0,0)] by j = [0, (0,1,0)] produces the quaternion k = [0, (0,0,1)]

2. Show that the quaternions q and -q represent the same rotation.

3. Consider the geometric derivation of the control point b2.
   Check that p_{i+1} - Bisect(p_i, Double(p_{i+2}, p_{i+1})) = 0.5*(p_{i+2} - p_i)

4. Consider the vectors A = (1,1,0) and B = (1,0,0). Decompose A into two vectors, one which is parallel to B and one that is perpendicular to B.

5. Consider the same vectors A and B from the previous question. Reflect the vector A around B.