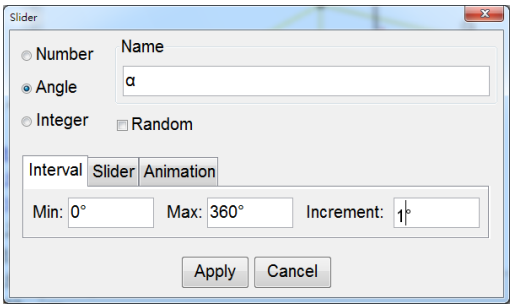
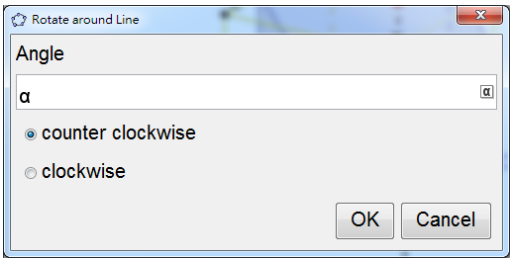
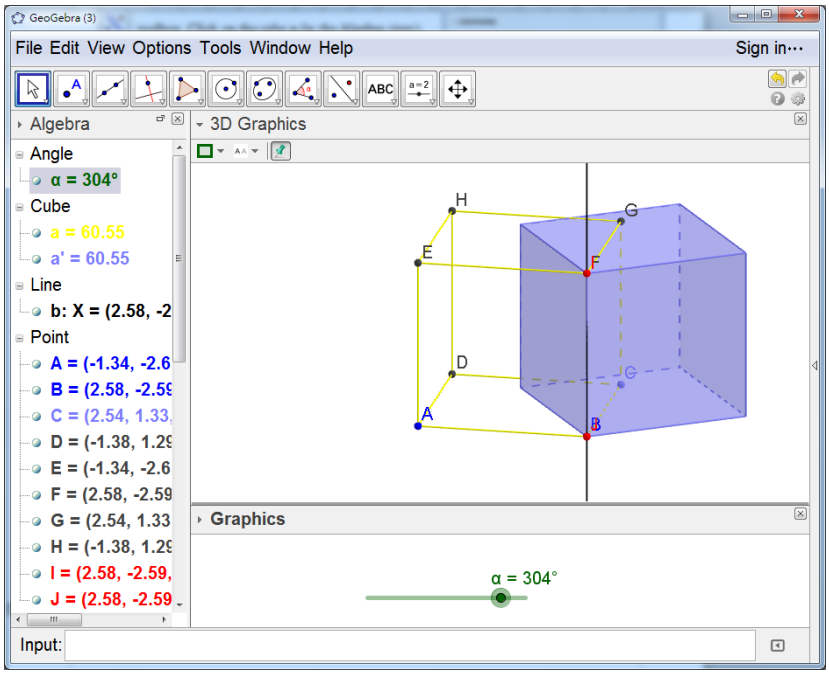
Task 9 Rotational Symmetry of the Cube

1. In a new 3D Graphics view, use the Cube tool in the toolbox to create a cube ABCDEFGH. Change its colour to yellow. Hide the axes and the base plane.
2. Use the Point tool to create two points I and J on the top and bottom of the cube respectively. Colour them in red.
3. Use the Line tool to draw a line through I and J.
4. Activate the Graphics view. Drag it to the position and size it according to the figure below. Hide the axes.
5. In the Graphics view, create a slider of angle α from 0° to 360° with increment 1°.



6. Use the View in front of tool in the Transformation toolbox. Click on the cube **a** (in the Algebra view), the line and enter "α" as the angle of rotation.



7. Make the original cube transparent. Colour the rotated cube in "Light Blue".
8. Explore the rotational symmetry of the cube by dragging the red points I and J to different positions.

   Use the View in front of tool in the toolbox to explain the number of folds of the symmetry.