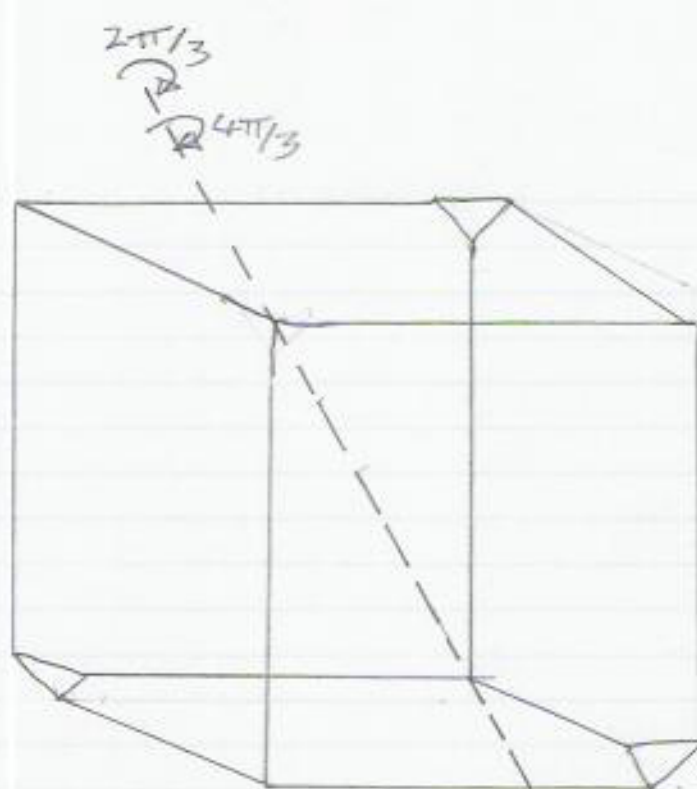


ii) C

②



$Q_8$  has a rotation axis of order 3 about opposite vertices as shown, where one of the vertices is connected to the three congruent triangles by edges of the cube, and the other has the triangles at the opposite vertex of each face with which it is incident.

Any other symmetry must interchange two of the triangular faces while fixing the third, but then this would have to be a rotation through the centre that fixed triangular face, which we have already considered.

There are symmetries of  $Q_8$  which do this but they are unclassified, Hence  $\langle Q_8 \rangle \cong C_3$

✓ 4/4

of