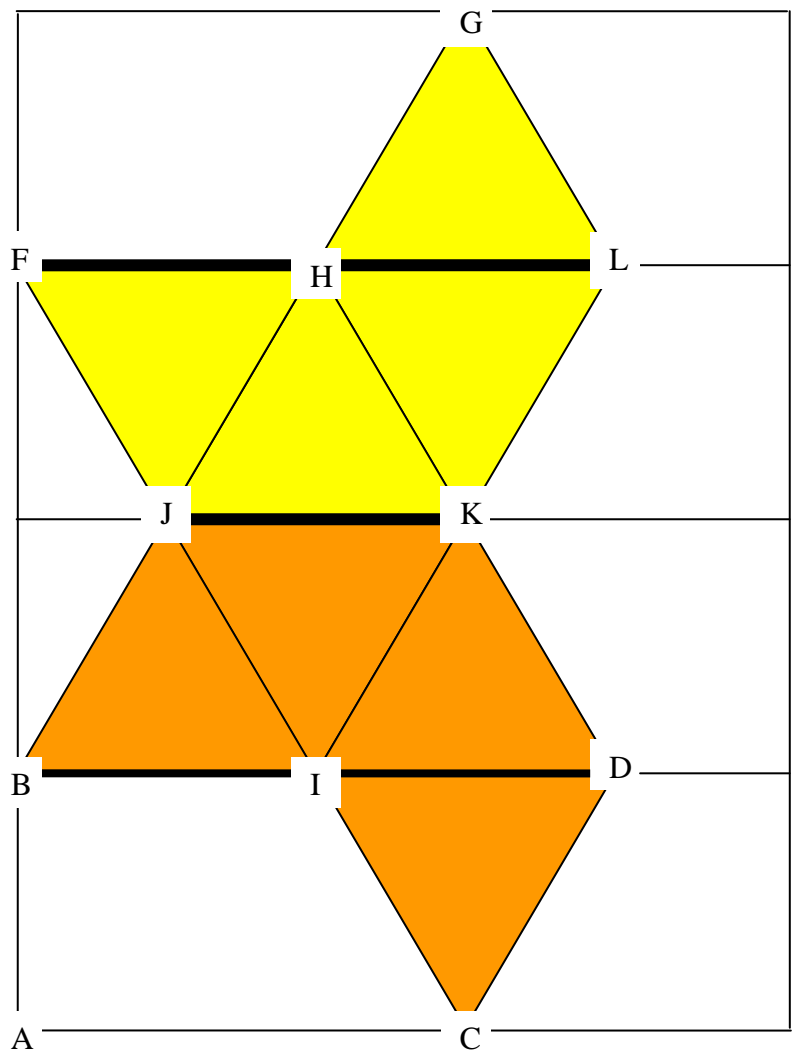


# How to make a cardboard regular octahedron

Use a piece of cardboard in A format, i.e. a sheet with the one side being  $\sqrt{2}$  times the other, in the A4-case it is 210mm times 297 mm. The instructions refers to this format. But relative lengths can be used, when a cardboard sheets of another size is used

1. Draw the 3 horizontal lines, using that A-B is one fourth of the long side of the sheet, i.e. 74.2 mm in A4
2. Mark point D using that the side in the triangles are  $(\sqrt{12})^{-1}$  of the long side or  $(\sqrt{6})^{-1}$  of the short side, in the A4 case 85.7 mm, making B-D 171.5 mm long.
3. Mark point C using that AC is 1.5 times the side in the triangles, which is 128.6 mm in the A4 case
4. Connect points C and F (defining points I and J) and do the symmetrical operation to connect points B and G (defining point H)
5. Now, connect points D and H (defining point K) and do the symmetrical operation to connect points I and L.
6. Complete the template by drawing the lines C-D and G-L.



7. If you want to glue the octahedron, leave a 1 cm strip outside the coloured area of sides C-D, C-I, B-J, K-L, and G-H and scissor away the rest. If you decide to tape it (it is easier to the non-professional) , leave no strips outside the orange and yellow triangles.
8. Fold the sheet along the middle horizontal line and the 4 yellow triangles will become the top faces of the octahedron, while the orange ones will constitute the bottom four triangles of the octahedron.
9. Further fold along the remaining lines.
10. **Tape** or **glue** line F-J with line B-J, then lines K-L and K-D. The remaining lines to be connected are not easy to overlook.
11. As a result the points B, C, F, and G should be collected in the same point
12. Make a twin to have two octahedron to compare, when you want to see if two ways of marking up the 6 corners (C, B, I, D, J, K, and H) are the same or not.