

DODECAMAGIC



Here you see the front and back views of a dodecahedron, a solid with pentagonal faces.

Using twenty of the numbers from 1 to 25, each vertex can be numbered so that the numbers around each pentagonal face add up to 65.



The number F is the number of faces of the solid.

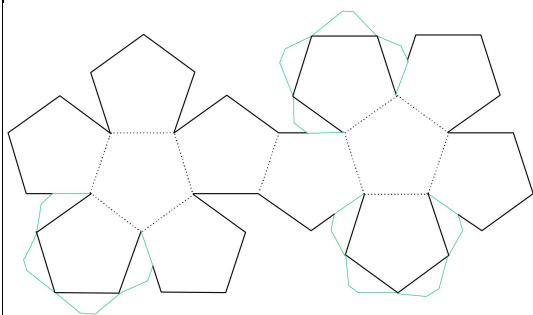
You might like to draw a dodecahedron net and write the numbers at the vertices, or make the solid and write the numbers on it. Can you find all the missing numbers?

Help



To solve this puzzle you need to imagine what objects look like from different angles. Here are two views of a mug looking down from above and looking straight on. The design you can see of the AIMSSEC logo is printed on the reverse side of the mug that is hidden from view. Make a sketch of the view from the back. Make another sketch of the mug from the right with the handle of the mug facing you.

Now try to imagine what the dodecahedron looks like from different angles.



Here is the net of the dodecahedron. Mark the numbers given in the puzzle where you think they should be on the net. Then try to work out where to place the other numbers.

You might make a model of the dodecahedron that you can turn around in your hands to help to solve the puzzle.

Extension

Which of these diagrams is a net that will make a cube and which is not? Choose one, make a cube and then make up your own number puzzle using a cube.

You might try some other model-making activities which will help you to consolidate 2D representation of 3D objects.

See Cube Nets <https://aiminghigh.aimssec.ac.za/years-6-10-cube-nets/>
Cut Nets <https://aiminghigh.aimssec.ac.za/years-6-10-cut-nets/>

