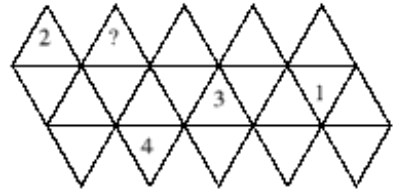




23. The net shown is folded into an icosahedron and the remaining faces are numbered such that at each vertex the numbers 1 to 5 all appear. What number must go on the face with a question mark?



- A 1      B 2      C 3      D 4      E 5

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23. **D** Label the rows of the triangles from left to right as follows:  $a_1, \dots, a_5$ ;  $b_1, \dots, b_{10}$  and  $c_1, \dots, c_5$ .  
Now 1 cannot be at  $a_4, a_5, b_7, b_8$  or  $c_4$  hence 1 must be at  $c_3$ .  
Hence  $b_4$  and  $b_5$  are 2 and 5 in either order. Hence  $a_3$  is 1 or 4.  
But 1 cannot be at  $a_4$  or  $b_7$  hence 1 must be at  $a_3$ .  
4 cannot be at  $b_3$  thus 4 is at  $a_2$ .  
Hence the number on the face with the question mark must be 4.