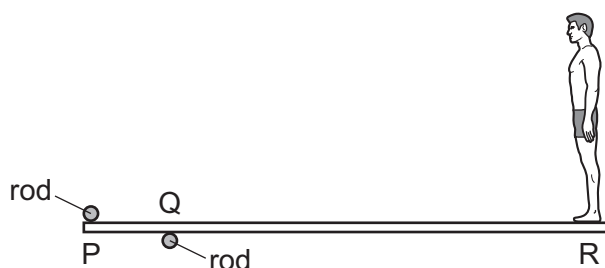


- 13 A uniform diving board is held by two fixed rods at points P and Q. A person stands at end R of the diving board, as shown.

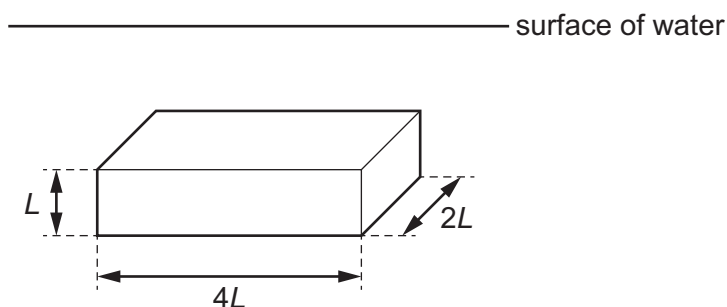


The forces exerted by the rods on the board are vertical. The board remains in equilibrium as the person slowly moves towards point Q from end R.

Which row describes the changes to the magnitudes of the forces exerted by the rods on the board?

	force at P	force at Q
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

- 14 A solid block has sides of length L , $2L$ and $4L$. The block is submerged in water of uniform density so that the faces with the largest area are horizontal, as shown.



The upthrust acting on the block is U .

The block is now rotated to a new position so that the faces with the smallest area are horizontal. The block remains fully submerged in the water.

What is the upthrust acting on the block in its new position?

- A** $\frac{U}{4}$ **B** U **C** $2U$ **D** $4U$