

MOMENT OF A FORCE-EQUILIBRIUM-SET-1-QP

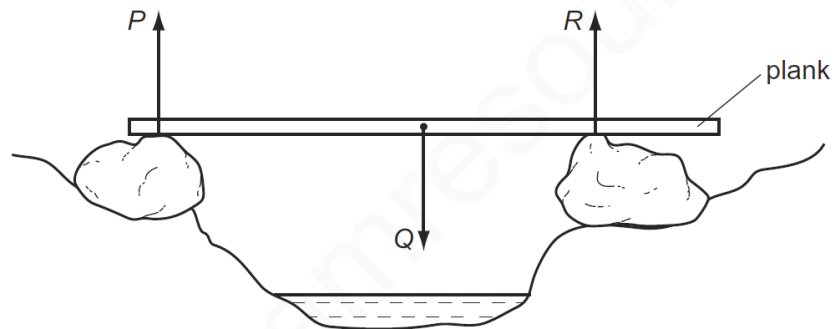
1

What are the conditions for equilibrium?

	resultant force acting	resultant turning effect acting
A	yes	yes
B	yes	no
C	no	yes
D	no	no

2

A wooden plank rests in equilibrium on two boulders on opposite sides of a narrow stream. Three forces of size P , Q and R act on the plank.



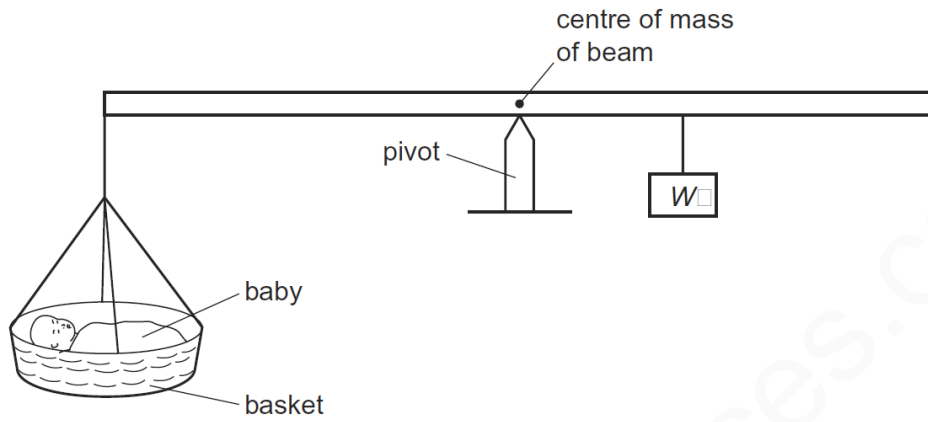
How are the sizes of the forces related?

- A** $P + Q = R$
- B** $P + R = Q$
- C** $P = Q = R$
- D** $P = Q + R$

3

The diagram shows a balance being used to find the weight of a baby. The weight of the basket can be ignored.

At equilibrium, the pivot is nearer to the weight W than to the baby.



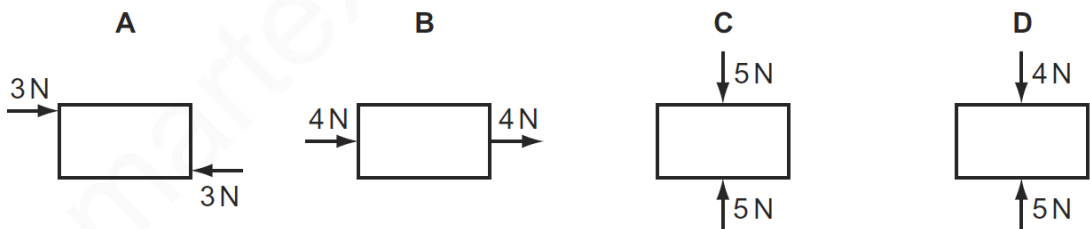
What is the weight of the baby?

- A less than W
- B more than W
- C W
- D impossible to tell

4

The diagrams show different objects, each being acted upon by only the two forces shown.

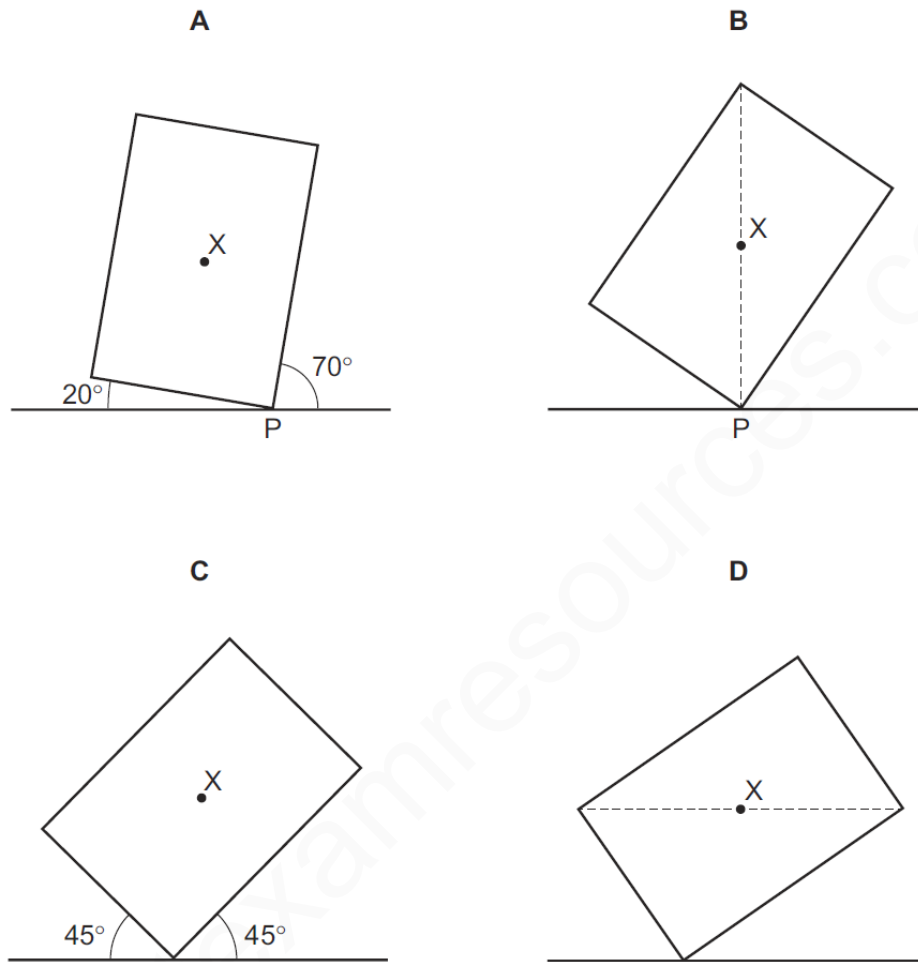
Which object is in equilibrium?



5

A plane lamina with centre of mass X touches the ground at point P .

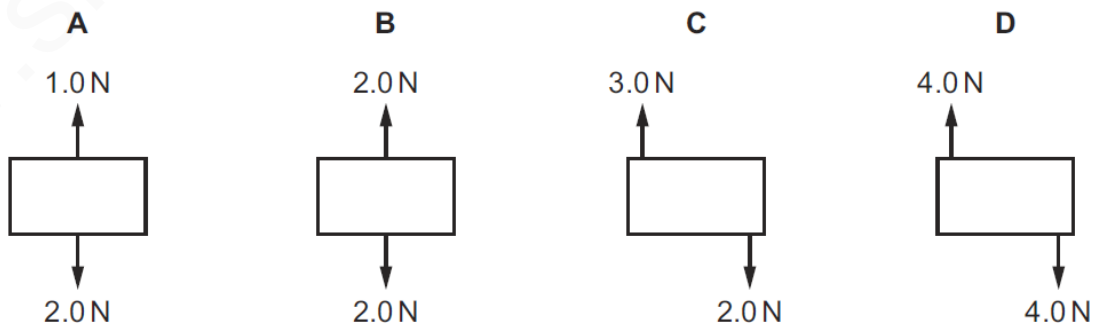
Which diagram shows the lamina in equilibrium?



6

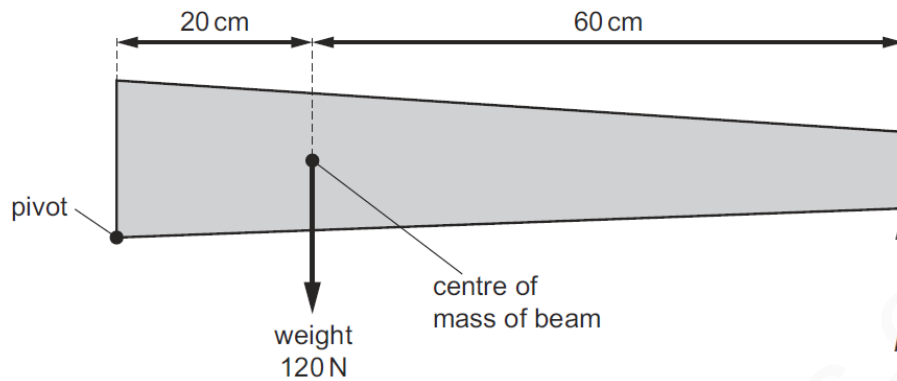
Four objects are each acted on by only two forces, as shown.

Which object is in equilibrium?



7

The diagram shows a non-uniform beam of weight 120 N, pivoted at one end. The beam is kept in equilibrium by force F .



What is the value of force F ?

- A** 30 N **B** 40 N **C** 360 N **D** 480 N

8

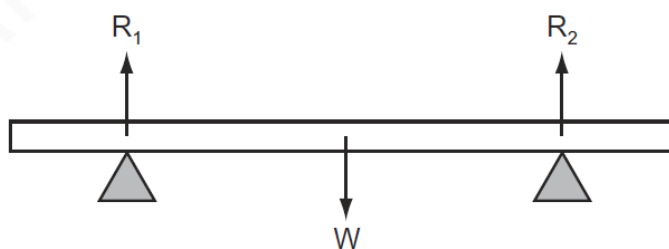
A spacecraft is travelling in space with no resultant force and no resultant moment acting on it.

Which statement about the spacecraft is correct?

- A** Its direction is changing.
B It is in equilibrium.
C Its speed is decreasing.
D Its speed is increasing.

9

A heavy beam is resting on two supports, so that there are three forces acting on it.



The beam is in equilibrium.

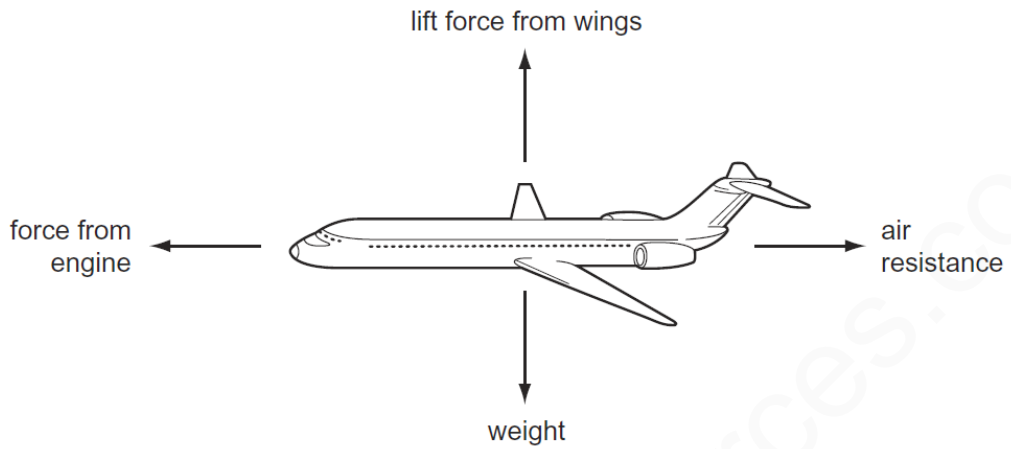
Which statement is correct?

- A** All the forces are equal in value.
B The forces are in one direction and their turning effects are in the opposite direction.
C The resultant force is zero and the resultant turning effect is zero.
D The total upward force is twice the total downward force.

10

An aeroplane is in equilibrium.

The diagram shows the forces acting on the aeroplane.



Which statement about the forces is correct?

	force from engine	lift force from wings
A	equal to air resistance	equal to weight
B	equal to air resistance	greater than weight
C	greater than air resistance	equal to weight
D	greater than air resistance	greater than weight

11

The diagrams show a uniform rod with its midpoint on a pivot.

Two equal forces F are applied to the rod, as shown.

Which diagram shows the rod in equilibrium?

