

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

1

What are the conditions for equilibrium?

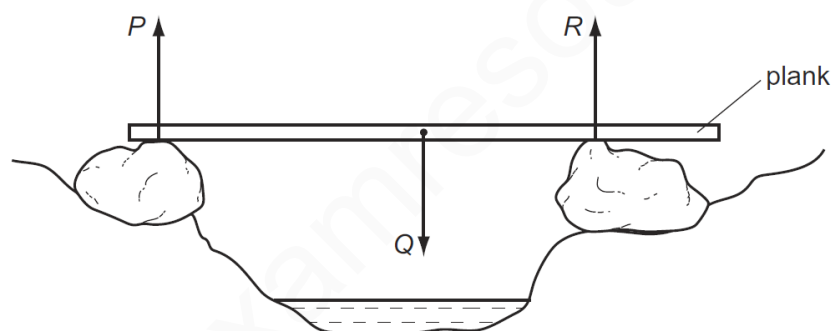
	resultant force acting	resultant turning effect acting
A	yes	yes
B	yes	no
C	no	yes
D	no	no

MS-1

D

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.

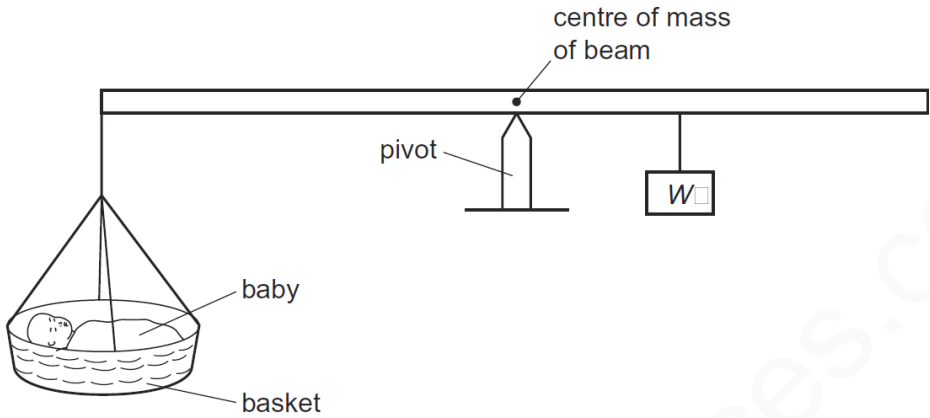


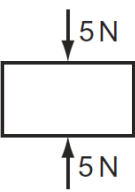
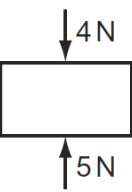


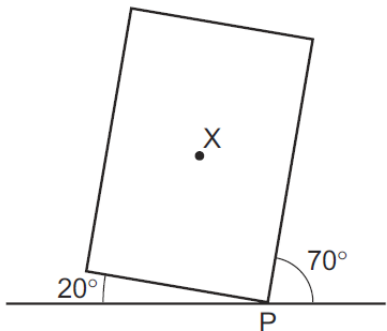
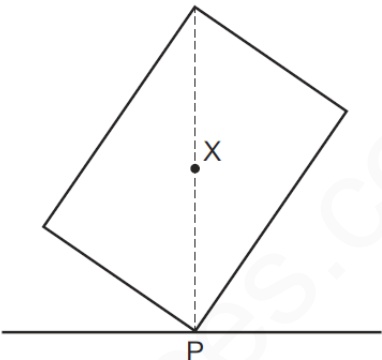
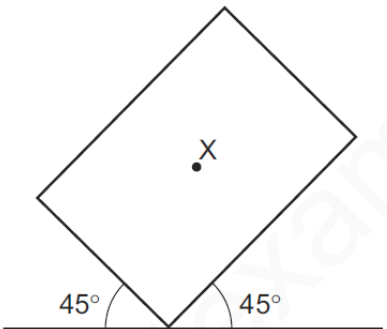
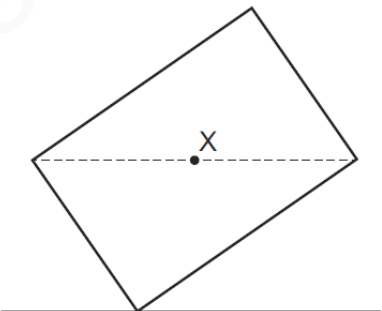
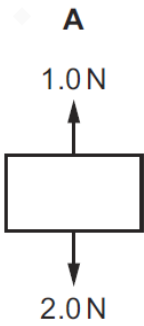
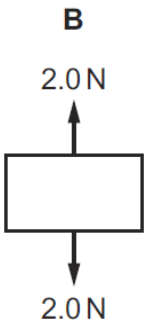
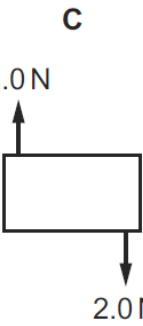
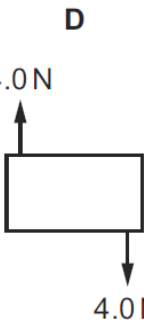
How are the sizes of the forces related?

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

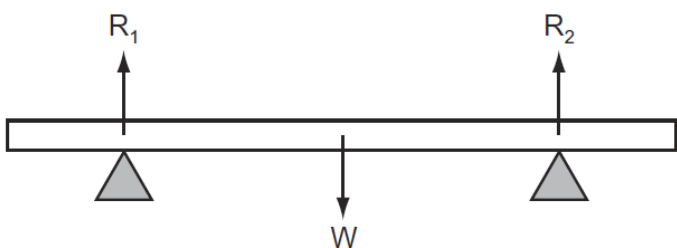
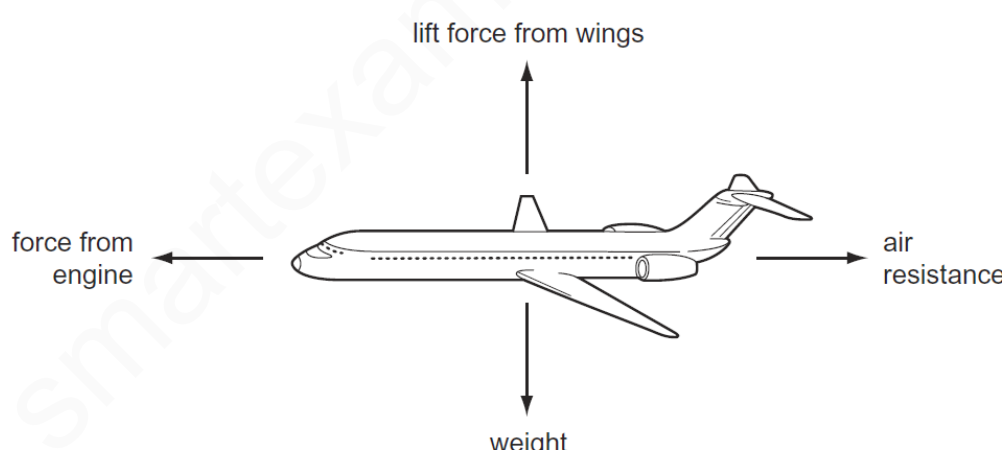
MS-2

B

3	<p>The diagram shows a balance being used to find the weight of a baby. The weight of the basket can be ignored.</p> <p>At equilibrium, the pivot is nearer to the weight W than to the baby.</p>  <p>What is the weight of the baby?</p> <p>A less than W B more than W C W D impossible to tell</p>
MS-3	A
4	<p>The diagrams show different objects, each being acted upon by only the two forces shown.</p> <p>Which object is in equilibrium?</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> <div style="text-align: center;"> <p>D</p>  </div> </div>
MS-4	C

5	<p>A plane lamina with centre of mass X touches the ground at point P.</p> <p>Which diagram shows the lamina in equilibrium?</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> <div style="text-align: center;"> <p>D</p>  </div> </div>
MS-5	B
6	<p>Four objects are each acted on by only two forces, as shown.</p> <p>Which object is in equilibrium?</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>A</p>  </div> <div style="text-align: center;"> <p>B</p>  </div> <div style="text-align: center;"> <p>C</p>  </div> <div style="text-align: center;"> <p>D</p>  </div> </div>
MS-6	B

7	<p>The diagram shows a non-uniform beam of weight 120 N, pivoted at one end. The beam is kept in equilibrium by force F.</p> <p>What is the value of force F?</p> <p>A 30 N B 40 N C 360 N D 480 N</p>
MS-7	A
8	<p>A spacecraft is travelling in space with no resultant force and no resultant moment acting on it.</p> <p>Which statement about the spacecraft is correct?</p> <p>A Its direction is changing. B It is in equilibrium. C Its speed is decreasing. D Its speed is increasing.</p>
MS-8	B

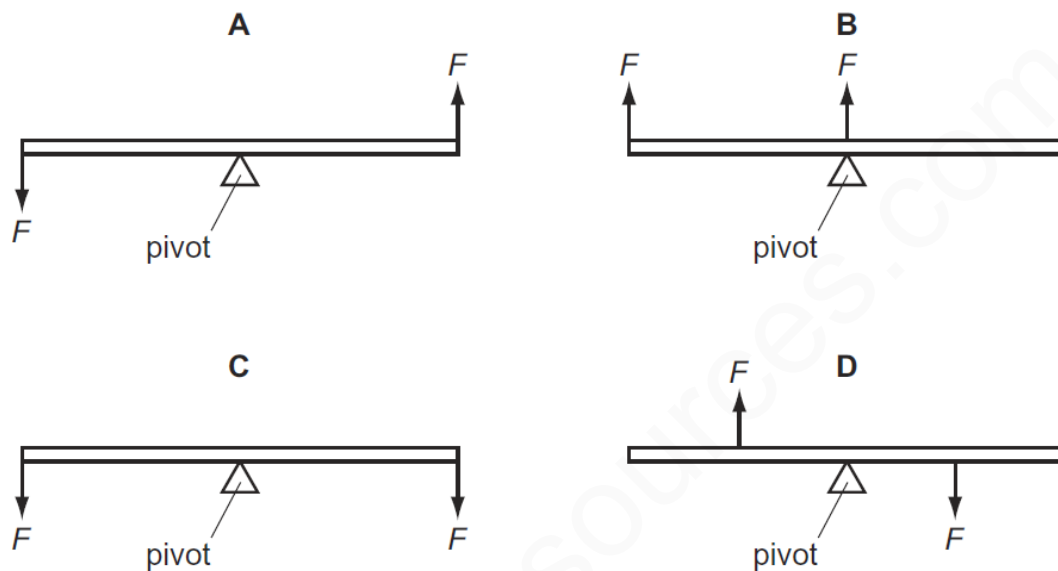
9	<p>A heavy beam is resting on two supports, so that there are three forces acting on it.</p> <div></div> <p>The beam is in equilibrium.</p> <p>Which statement is correct?</p> <p>A All the forces are equal in value.</p> <p>B The forces are in one direction and their turning effects are in the opposite direction.</p> <p>C The resultant force is zero and the resultant turning effect is zero.</p> <p>D The total upward force is twice the total downward force.</p>															
MS-9	C															
10	<p>An aeroplane is in equilibrium.</p> <p>The diagram shows the forces acting on the aeroplane.</p> <div></div> <p>Which statement about the forces is correct?</p> <table><tr><td></td><td>force from engine</td><td>lift force from wings</td></tr><tr><td>A</td><td>equal to air resistance</td><td>equal to weight</td></tr><tr><td>B</td><td>equal to air resistance</td><td>greater than weight</td></tr><tr><td>C</td><td>greater than air resistance</td><td>equal to weight</td></tr><tr><td>D</td><td>greater than air resistance</td><td>greater than weight</td></tr></table>		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
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D	greater than air resistance	greater than weight														
MS-10	A															

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?



MS-11

C