

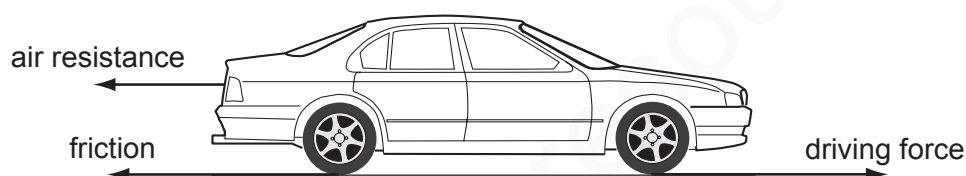
# FORCES

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1 In which of these situations is no resultant force needed?

- A a car changing direction
  - B a car moving in a straight line at a steady speed
  - C a car slowing down
  - D a car speeding up
- 

2 Three horizontal forces act on a car that is moving along a straight, level road.



Which combination of forces would result in the car moving at constant speed?

	air resistance	friction	driving force
A	200 N	1000 N	800 N
B	800 N	1000 N	200 N
C	800 N	200 N	1000 N
D	1000 N	200 N	800 N

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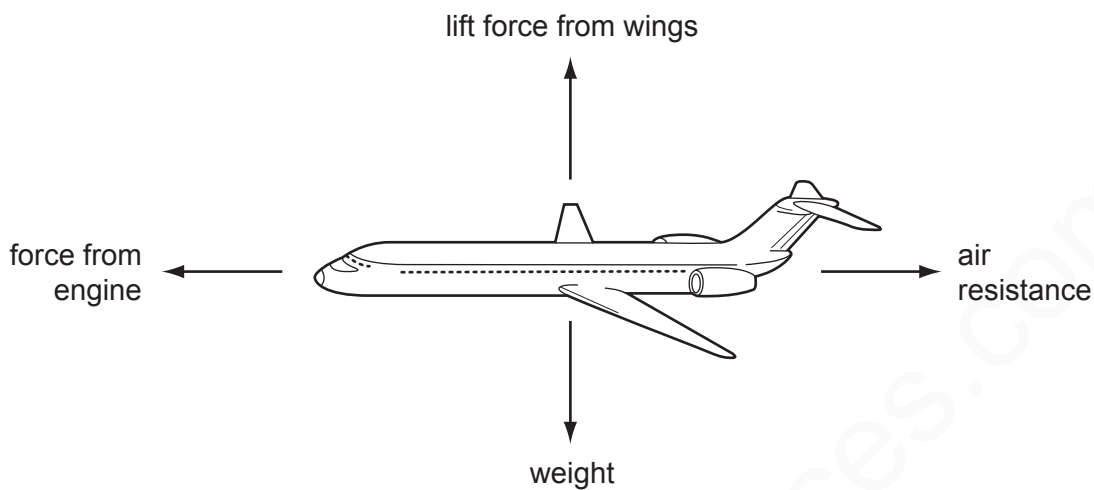
3 Two forces act on an object.

In which situation is it **impossible** for the object to be in equilibrium?

- A The two forces act in the same direction.
- B The two forces act through the same point.
- C The two forces are of the same type.
- D The two forces are the same size.

4 An aeroplane is in equilibrium.

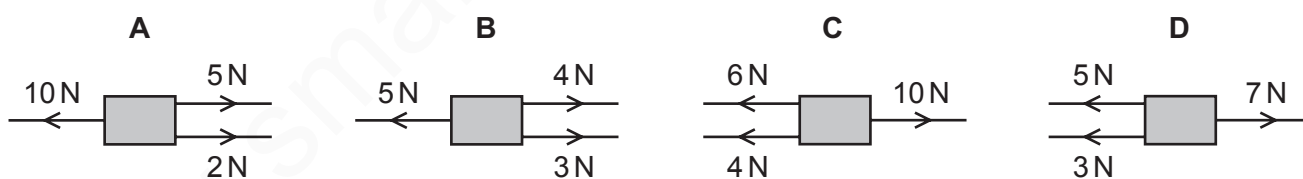
The diagram shows the forces acting on the aeroplane.



Which statement about the forces is correct?

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

5 Which combination of forces produces a resultant force acting towards the right?



6 A ball is thrown upwards.

What effect does the force of gravity have on the ball?

- A It produces a constant acceleration downwards.
  - B It produces a constant acceleration upwards.
  - C It produces a decreasing acceleration upwards.
  - D It produces an increasing acceleration downwards.
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7 Which list contains the name of a force?

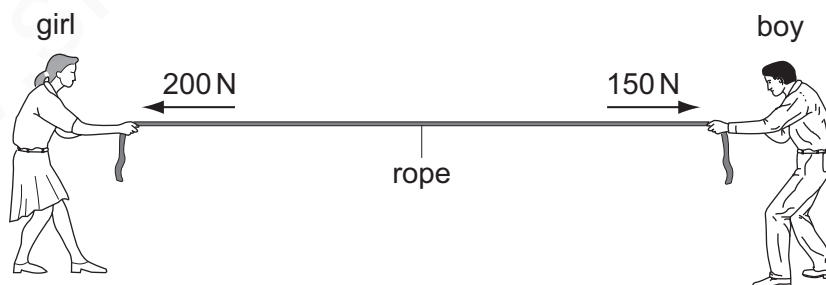
- A acceleration, charge, temperature
  - B density, resistance, speed
  - C distance, frequency, mass
  - D energy, power, weight
- 

8 A force acts on a moving rubber ball.

Which of these changes could **not** happen to the ball because of the force?

- A a change in direction
  - B a change in mass
  - C a change in shape
  - D a change in speed
- 

9 A girl and a boy are pulling in opposite directions on a rope. The forces acting on the rope are shown in the diagram.



Which single force has the same effect as the two forces shown?

- A 50 N acting towards the girl
- B 350 N acting towards the girl
- C 50 N acting towards the boy
- D 350 N acting towards the boy

**10** In which situation is **no** resultant force needed?

- A** a car changing direction at a steady speed
  - B** a car moving in a straight line at a steady speed
  - C** a car slowing down
  - D** a car speeding up
- 

**11** A box is being moved by a fork-lift truck. The total weight of the box is 3000 N.



The force exerted by the fork-lift truck on the box is 3500 N upwards.

What is the resultant force on the box?

- A** 500 N downwards
  - B** 500 N upwards
  - C** 6500 N downwards
  - D** 6500 N upwards
- 

**12** Which statement about a moving object is correct?

- A** When an object is accelerating, the resultant force acting on it must equal zero.
- B** When an object is moving at a steady speed, the air resistance acting on it must equal zero.
- C** When an object is moving at a steady speed, the resultant force acting on it must equal zero.
- D** When an object is moving, there must be a resultant force acting on it.

**13** On which ball is a non-zero resultant force acting?

**A**

a ball moving at constant speed on a smooth surface



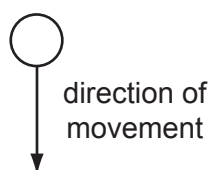
**B**

a ball at rest on a bench



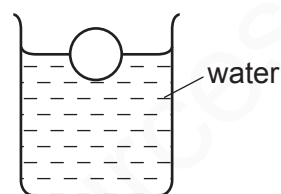
**C**

a free-falling ball which has just been released



**D**

a ball floating on water



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**14** The diagrams show four identical objects. Each object is acted on by only the three forces shown.

Which object accelerates to the right, with the **smallest** acceleration?

**A**



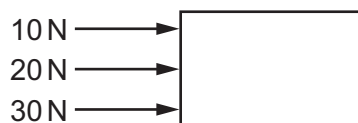
**B**



**C**

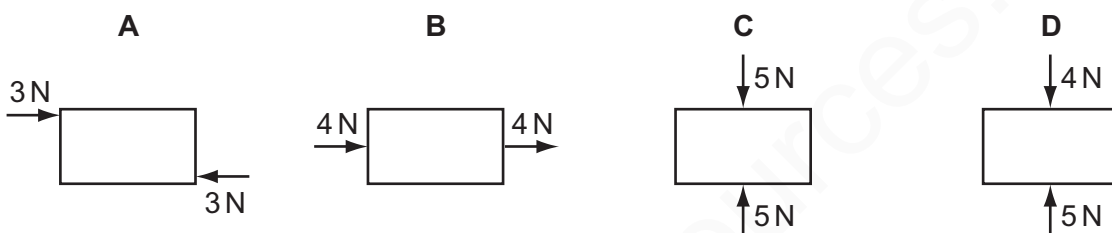


**D**

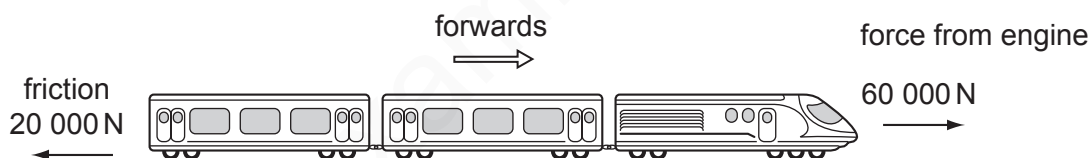


- 15** A student stands with both feet on some scales in order to measure his weight.
- The reading on the scales is 500 N. He lifts one foot off the scales and keeps it lifted.
- What is the new reading on the scales?
- A** 0                      **B** 250 N                      **C** 500 N                      **D** 1000 N
- 

- 16** The diagrams show different objects, each being acted upon by only the two forces shown.
- Which object is in equilibrium?



- 17** A train is travelling along a horizontal track at constant speed. Two of the forces acting on the train are shown in the diagram.

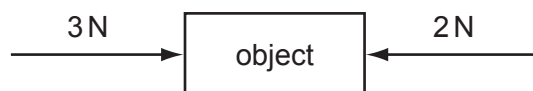


A force of air resistance is also acting on the train to give it a resultant force of zero.

What is this air resistance force?

- A** 40 000 N backwards
- B** 80 000 N backwards
- C** 40 000 N forwards
- D** 80 000 N forwards
- 

- 18** The object in the diagram is acted upon by the two forces shown.



What is the effect of these forces?

- A** The object moves to the left with constant speed.
- B** The object moves to the left with constant acceleration.
- C** The object moves to the right with constant speed.
- D** The object moves to the right with constant acceleration.