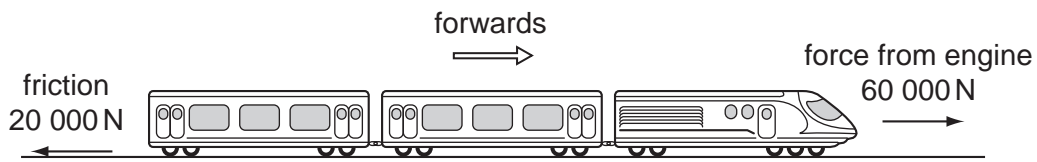


EFFECTS OF FORCES-SET-2-MS

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

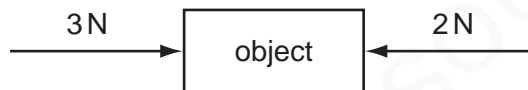


A force of air resistance is also acting on the train so that the forces balance.

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

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

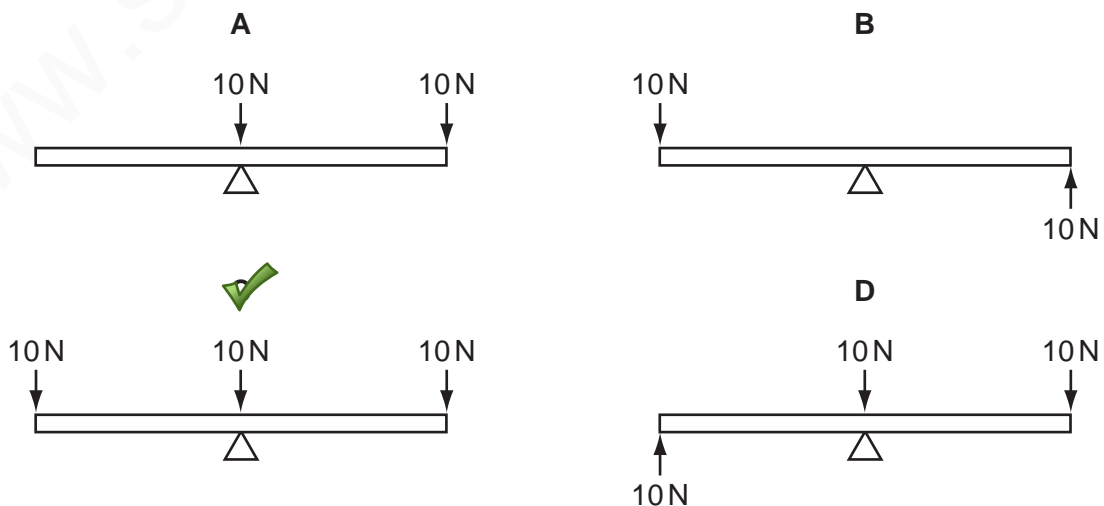


What is the effect of these forces?

- 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.

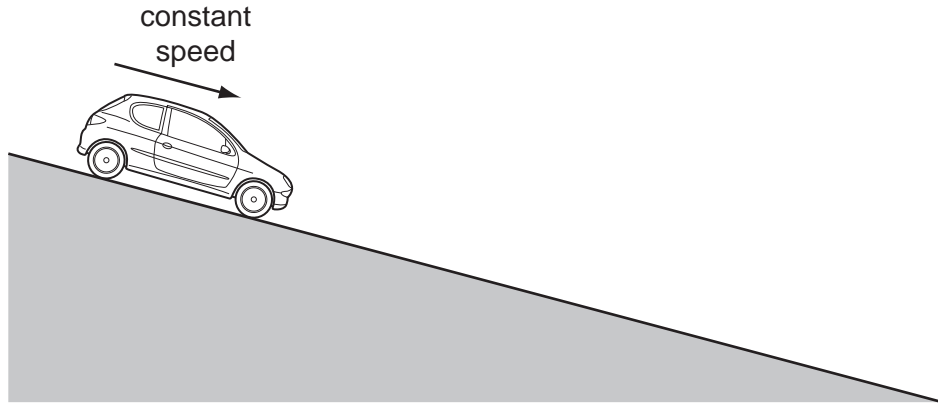
- 3 Four beams are each balanced on a pivot at their centres as shown. Forces are then applied to the beams as shown.

Which beam will **not** rotate when the forces shown are applied?



4

A car rolls down a hill at a constant speed.



Which row describes the friction force and the unbalanced force acting on the car?

	friction force	unbalanced force
A	acts downhill	acts downhill
B	acts uphill	acts downhill
<input checked="" type="checkbox"/> C	acts uphill	is zero
D	is zero	is zero

A girl of mass 50 kg is running at 6.0 m/s.

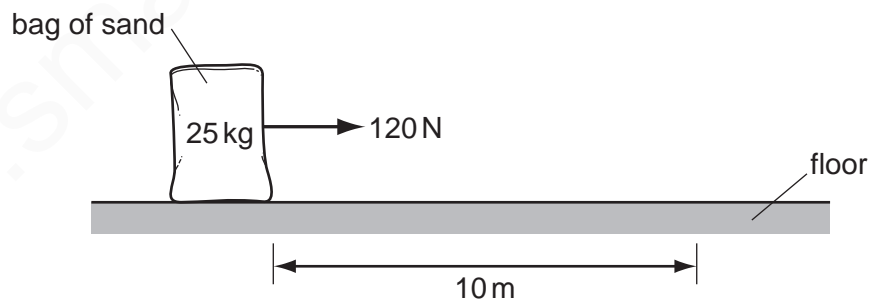
5

What is her momentum?

- A** 300 J **B** 300 kg m/s **C** 900 J **D** 900 kg m/s

6

A horizontal force of 120 N is used to pull a 25 kg bag of sand 10 m along a floor.



How much work is done by the force?

- A** 2.5 J **B** 12 J **C** 250 J **D** 1200 J

7 Diagram 1 shows a spring with its length indicated. Diagram 2 shows the same spring with a 20 N load hung from it, and the new length of the spring.

The extension of the spring is directly proportional to the load hung on it.

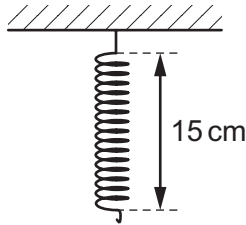


diagram 1

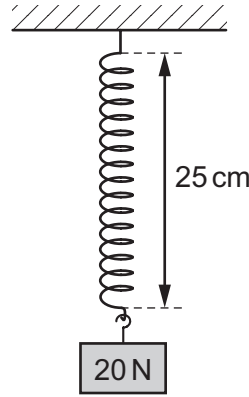
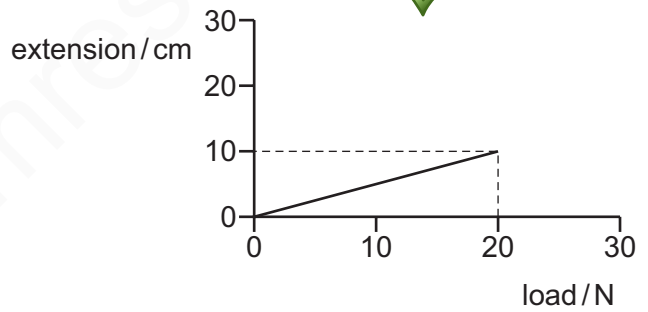
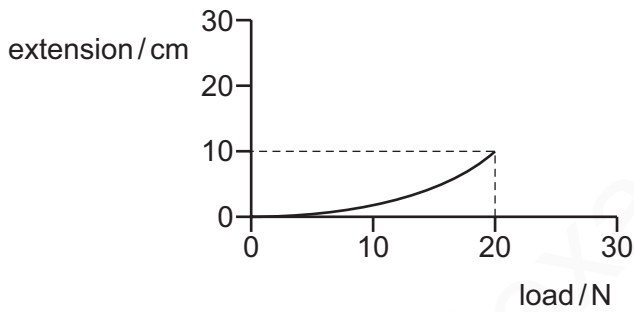


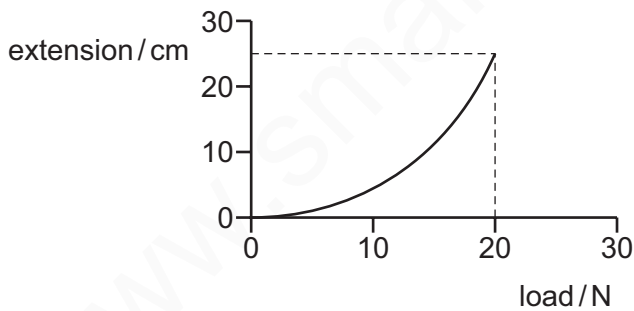
diagram 2

Which graph is the extension/load graph for the spring?

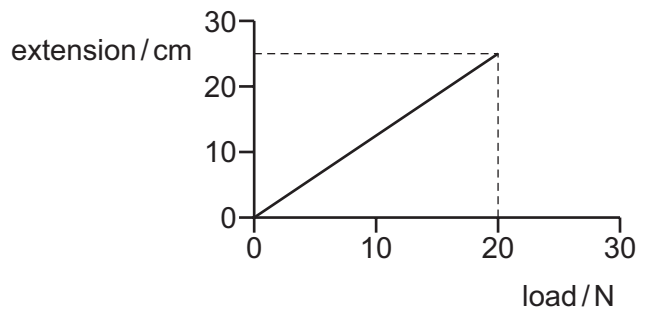
A



C

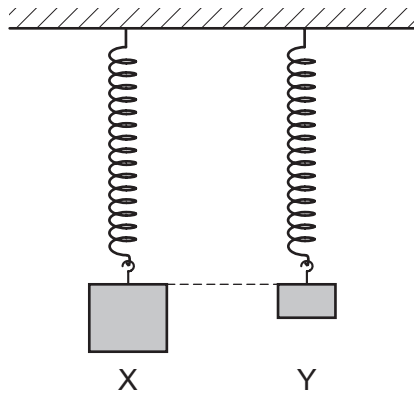


D



8

Two objects X and Y are suspended from identical springs. Both springs extend by the same amount.

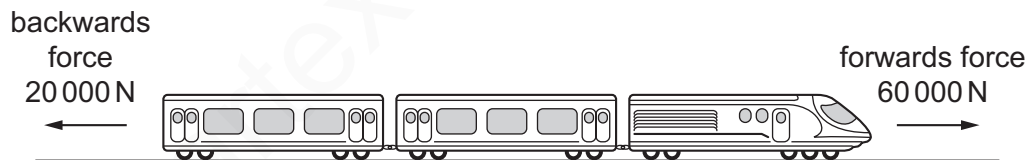


What does this show about the masses and about the weights of objects X and Y?

	masses	weights
A	mass X is greater than mass Y	weight X is greater than weight Y
B	mass X is greater than mass Y	weight X is equal to weight Y
<input checked="" type="checkbox"/>	mass X is equal to mass Y	weight X is equal to weight Y
D	mass X is equal to mass Y	weight X is less than weight Y

9

A train travels 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

10 A spring that obeys Hooke's law has an unstretched length of 5.0 cm. A load of weight 0.50 N is hung from the spring and the length of the spring becomes 10.0 cm.

The load is replaced with a new load and the length of the spring becomes 15.0 cm. 0654/21/M/J/19

The spring has not passed its limit of proportionality.

What is the weight of the new load?

- A** 0.50 N **B** 0.75 N **C** 1.0 N **D** 1.5 N