Forces – 2019 Nov

1. 0625/11, 12,13/O/N/19/No.6

A student measures the length of a spring. She then attaches different weights to the spring. Sh measures the length of the spring for each weight.

The table shows her results.

weight / N	length / mm
0	520
1.0	524
2.0	528
3.0	533
4.0	537
5.0	540

What is the extension of the spring with a weight of 3.0 N attached to it?

A 4 mm **B** 5 mm **C** 12 mm **D** 13 mm

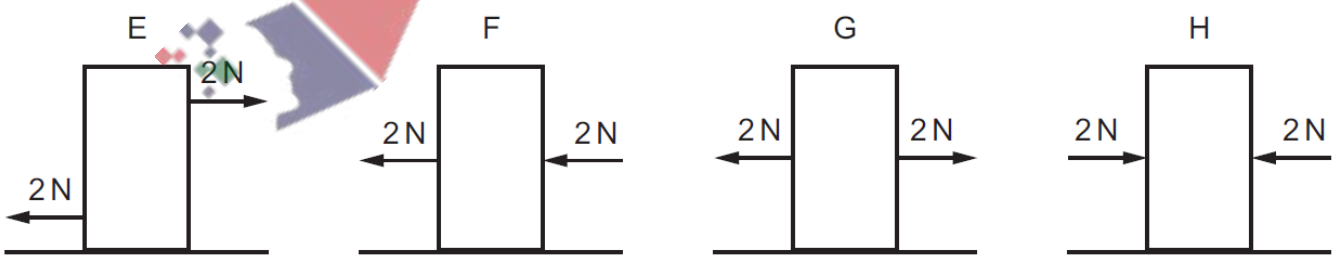
2. 0625/12/O/N/19/No.7

What is the unit of the moment of a force?

A N **B** N / kg **C** N / m **D** N m

3. 0625/12/O/N/19/No.8

The diagrams show a block of wood on a frictionless surface. In each diagram, the block has two forces acting on its sides.



Which diagrams show the block in equilibrium?

A E, G and H only

B E and F only

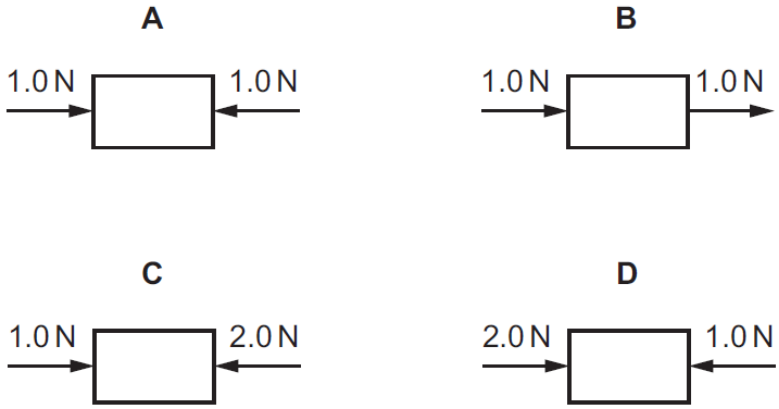
C G and H only

D E, F, G and H

4. 0625/13/O/N/19/No.8

The diagrams represent the only two forces acting on an object.

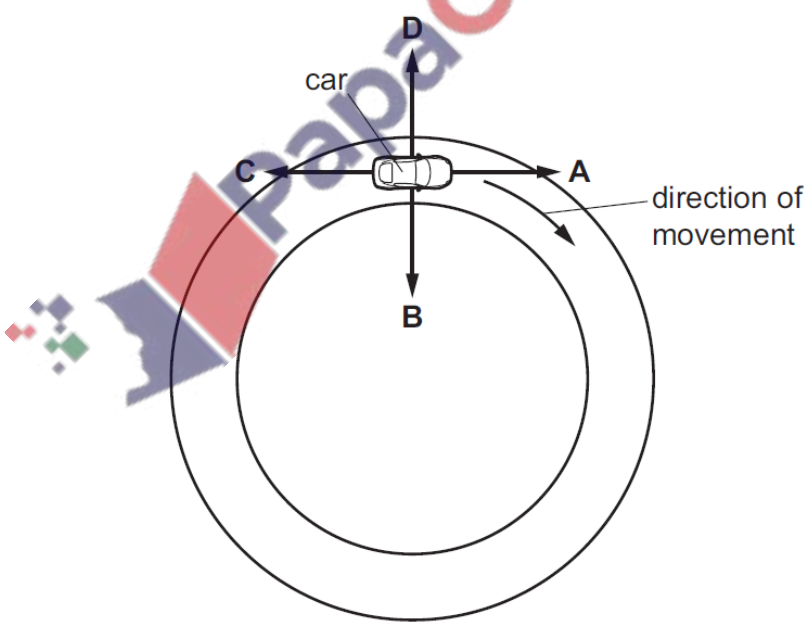
Which object could be moving to the right at constant speed?



5. 0625/21/O/N/19/No.6

A car is travelling around a circular track at a constant speed, as shown.

In which direction is the resultant force on the car?



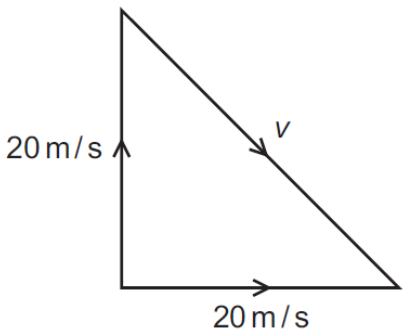
6. 0625/22/O/N/19/No.8

A ship travels due North through still water at a speed of 20 m / s.

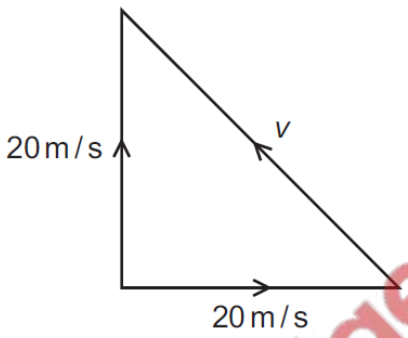
It enters a channel where there is a current in the water from West to East. The speed of the current is 20 m / s.

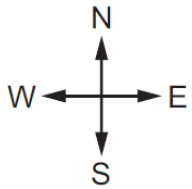
Which diagram shows the resultant velocity *v* of the ship?

A

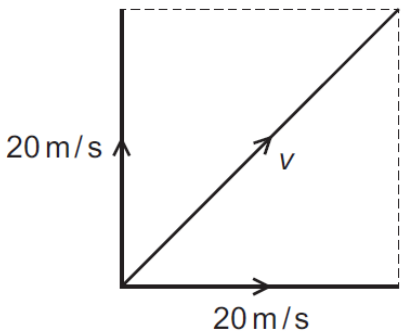


B

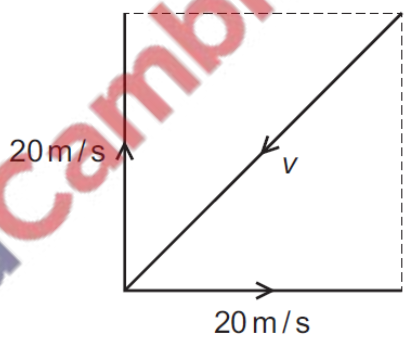




C



D



7. 0625/23/O/N/19/No.5

A box of mass 2.0 kg is pulled across a horizontal floor by a force of 6.0 N.

The frictional force acting on the box is 1.0 N.

What is the acceleration of the box?

A $0.40\,m/s^2$ **B** $2.5\,m/s^2$ **C** $3.0\,m/s^2$ **D** $3.5\,m/s^2$

8. 0625/23/O/N/19/No.8

A ship sails due North at a speed of 20 m/s. A current in the water begins to move from East to West. The speed of this current is 20 m/s.

What is the magnitude of the resultant velocity of the ship?

A 0 m/s **B** 20 m/s **C** 28 m/s **D** 40 m/s