



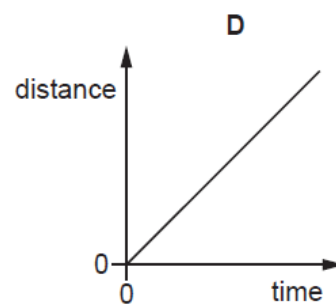
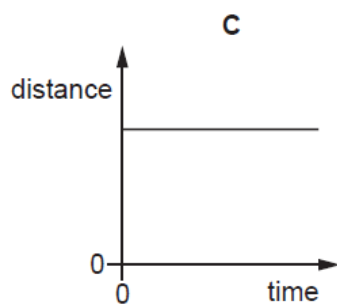
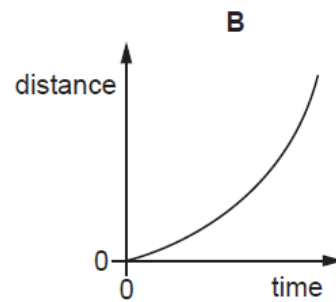
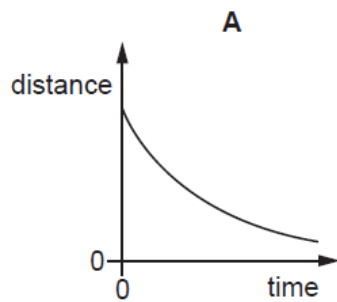
ÉCOLE GLOBALE
INTERNATIONAL GIRLS SCHOOL
Dehradun

HOLIDAYS HOMEWORK
CLASS 9A

SUMMER BREAK 2018-19
SUBJECT: PHYSICS

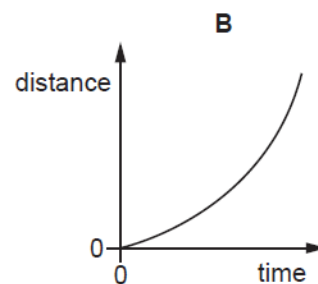
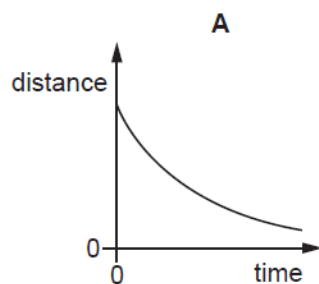
1.

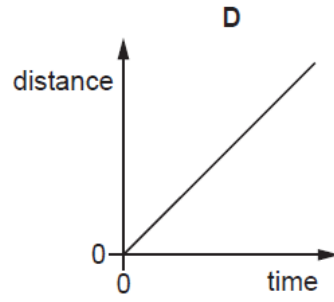
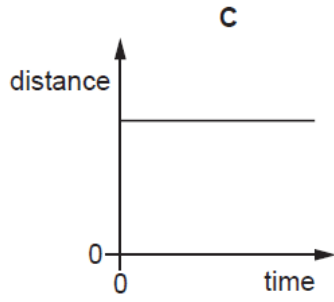
Which distance/time graph represents the motion of an object moving at constant speed?



2.

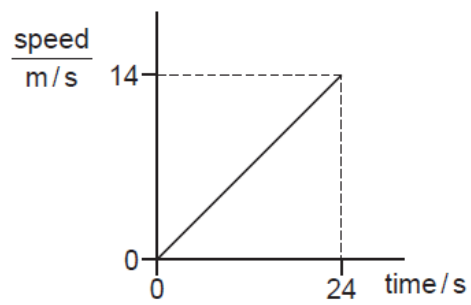
2 Which distance/time graph represents the motion of an object moving at constant speed?





3.

The graph shows how the speed of a car changes with time.



Which calculation gives the distance travelled by the car in 24 seconds?

- A** $\left(\frac{14}{24}\right)\text{m}$
- B** $\left(\frac{24}{14}\right)\text{m}$
- C** $\left(\frac{24 \times 14}{2}\right)\text{m}$
- D** $(24 \times 14)\text{m}$

4 Which instrument is used to compare the masses of objects?

- A a balance
- B a barometer
- C a manometer
- D a measuring cylinder

5 A liquid has a volume of 100 cm^3 and a mass of 85 g.

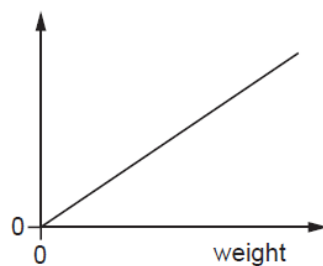
The density of water is 1.0 g/cm^3 .

How does the density of the liquid compare with the density of water?

- A Its density is higher than that of water.
- B Its density is lower than that of water.
- C Its density is the same as that of water.
- D It is impossible to say with only this data.

7 A student adds weights to an elastic cord. He measures the length of the cord for each weight.

He then plots a graph from the results, as shown.



What has he plotted on the vertical axis?

- A measured length
- B original length
- C (measured length + original length)
- D (measured length – original length)

8.

Four cars are driven along a road.

The table shows the work done by the engine in each car and the time taken by each car.

Which engine produces the most power?

| | work done by engine / J | time taken / s |
|----------|-------------------------|----------------|
| A | 50 000 | 20 |
| B | 50 000 | 40 |
| C | 100 000 | 20 |
| D | 100 000 | 40 |

9.

Which situation is an example of a force acting over a large area to produce a small pressure?

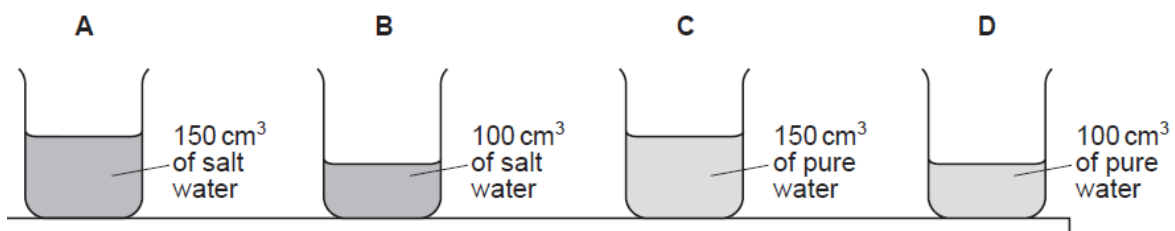
- A** a builder hammering a nail into a piece of wood
- B** a cook using a sharp knife to cut vegetables
- C** a nurse pushing a needle into a patient's arm
- D** a soldier marching in flat-soled boots

10.

A student places four identical beakers on a bench.

Two beakers contain salt water of density 1.1g/cm^3 and two beakers contain pure water of density 1.0g/cm^3 .

Which beaker exerts the greatest pressure on the bench?



12.

An athlete of mass 64 kg is bouncing up and down on a trampoline.

At one moment, the athlete is stationary on the stretched surface of the trampoline. Fig. 3.1 shows the athlete at this moment.

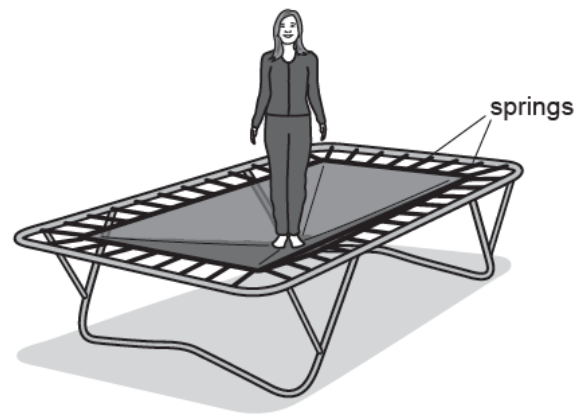


Fig. 3.1

At a sports event, a champion runner and a car take part in a race.

- (a) The runner runs at a constant speed of 10 m/s from the start of the race. During the first 5.0 s of the race, the car's speed increases from 0 m/s to 25 m/s at a uniform rate.

On Fig. 1.1, draw

- (i) a graph to show the motion of the runner, [1]
(ii) a graph to show the motion of the car.

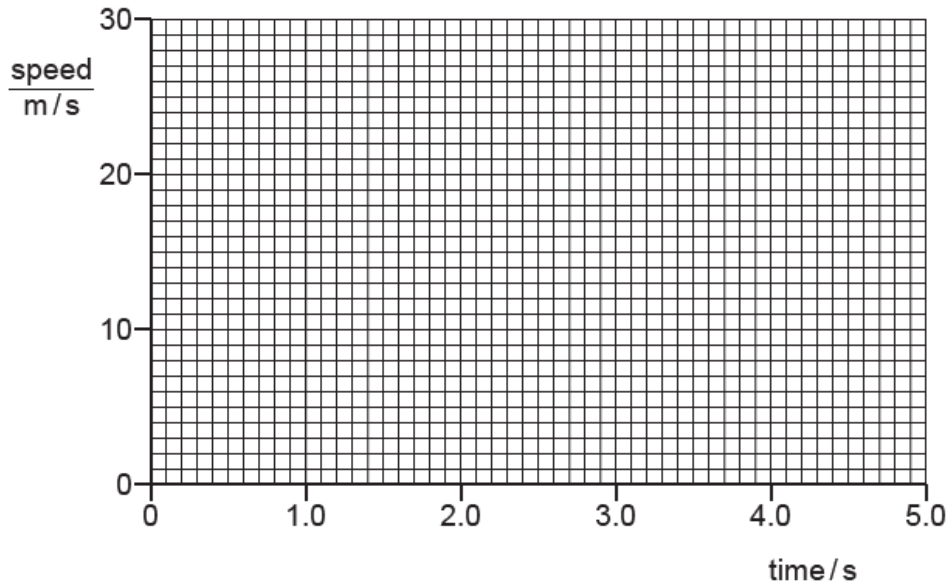


Fig. 1.1

[1]

(b) Use your graphs to determine

- (i) the distance travelled by the runner in the 5.0 s,

distance = [1]

- (ii) the distance travelled by the car in the 5.0 s,

distance = [2]

- (iii) the time at which the car overtakes the runner.

time = [2]

[Total: 7]

2 An electric train is initially at rest at a railway station. The motor causes a constant force of 360 000 N to act on the train and the train begins to move.

(a) State the form of energy gained by the train as it begins to move.

.....[1]

(b) The train travels a distance of 4.0 km along a straight, horizontal track.

(i) Calculate the work done on the train during this part of the journey.

work done =[2]

(ii) The mass of the train is 450 000 kg.

Calculate the maximum possible speed of the train at the end of the first 4.0 km of the journey.

maximum possible speed =[3]

(iii) In practice, the speed of the train is much less than the value calculated in (ii).

Suggest **one** reason why this is the case.

.....
.....[1]

(c) After travelling 4.0 km, the train reaches its maximum speed. It continues at this constant speed on the next section of the track where the track follows a curve which is part of a circle.

State the direction of the resultant force on the train as it follows the curved path.

.....[1]

[Total: 8]