

IGCSE Physics 0625

Paper 2 Topical

2016 to 2023

2100+ Qs with Keys



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Preface

This book, **IGCSE Physics P2 (MCQs)** provides a thorough practice and revision for all topics included in IGCSE Physics (0625) syllabus.

It has been an established fact that the questions from past papers provide the students with the best practice. They are able to apply what they have learnt and, therefore, can judge their knowledge of the subject.

This book contains more than **1600 MCQs** selected from last 10 year past papers. The questions have been taken from **all variants** including **February/March session**. They are arranged orderly, **older to newer**. An **Answers Key** is provided at the end of the book for reference.

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STUDENTS RESOURCE

1 Motion, Forces and Energy

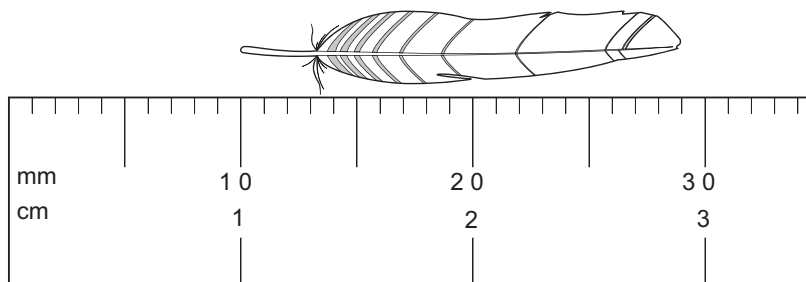
1.1 Physical Quantities and Measurement Techniques

1. The diameter of a copper wire is thought to be approximately 0.3 mm.
Which instrument should be used to obtain a more accurate measurement of the diameter of the wire?

A measuring tape B metre rule C micrometer D ruler

(F/M/2016/P22/EXT/Q.1)

2. The diagram shows an enlarged drawing of the end of a metre rule. It is being used to measure the length of a small feather.



What is the length of the feather?

A 19 mm B 29 mm C 19 cm D 29 cm

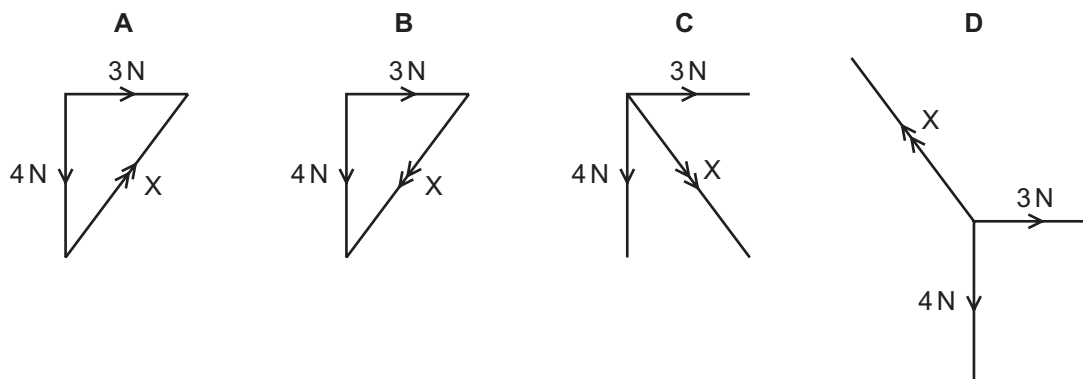
(M/J/2016/P21/EXT/Q.1) (M/J/2016/P22/EXT/Q.1) (M/J/2016/P23/EXT/Q.1)

3. A scalar quantity has

A magnitude and direction. C magnitude but no direction.
B no magnitude and no direction. D direction but no magnitude.

(M/J/2016/P21/EXT/Q.8)

4. An object is acted upon by a 3 N force and by a 4 N force. Each diagram shows the two forces.
Which diagram also shows the resultant X of these two forces?



(M/J/2016/P22/EXT/Q.7)

5. Which list contains only vector quantities?

A energy, force, velocity C velocity, energy, acceleration
B speed, acceleration, force D velocity, force, acceleration

(M/J/2016/P23/EXT/Q.7)

6. Which list contains only vector quantities?

- A acceleration, energy, force, mass C distance, energy, mass, speed
 B acceleration, force, momentum, velocity D distance, momentum, power, speed

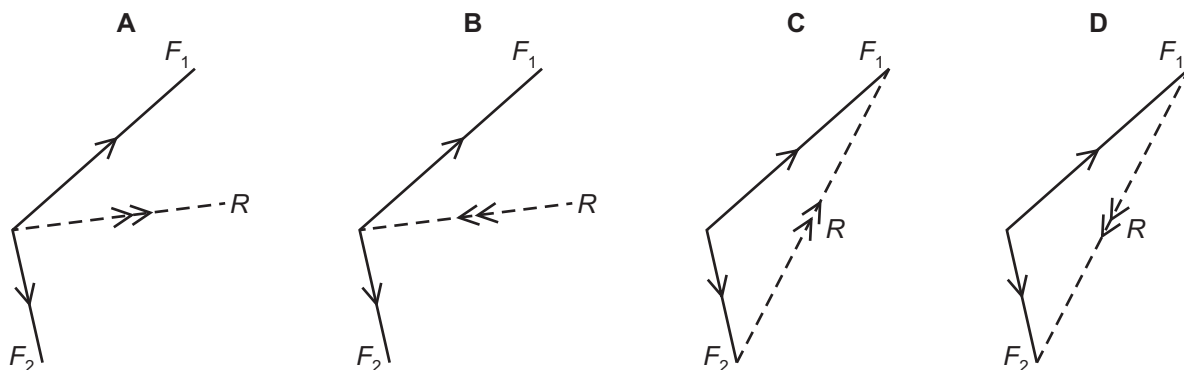
(O/N/2016/P22/EXT/Q.9)

7. Which list contains only scalar quantities?

- A acceleration, energy, force, mass C distance, energy, mass, speed
 B acceleration, force, momentum, velocity D distance, momentum, speed, velocity

(O/N/2016/P23/EXT/Q.9)

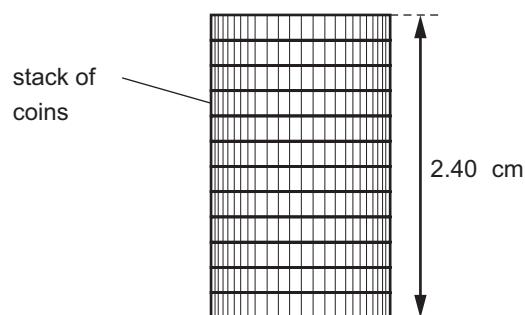
8. Which diagram shows the magnitude and direction of the resultant R of the two forces F_1 and F_2 ?



(O/N/2016/P21/EXT/Q.7)

9. The diagram shows the height of a stack of identical coins. What is the thickness of one coin?

- A 0.20 mm
 B 2.0 mm
 C 0.24 cm
 D 2.0 cm



(F/M/2017/P22/EXT/Q.1)

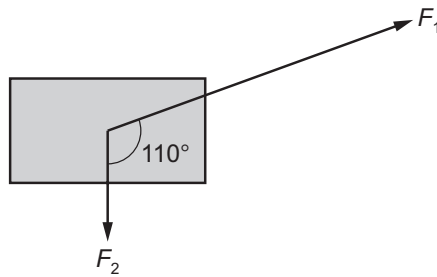
10. A pendulum is swinging. Five students each measure the time it takes to swing through ten complete swings. Three students measure the time as 17.2 s. Another student measures it as 16.9 s, and the fifth student measures it as 17.0 s. What is the average period of the pendulum?

- A 1.69 s B 1.70 s C 1.71 s D 1.72 s

(M/J/2017/P23/EXT/Q.2)

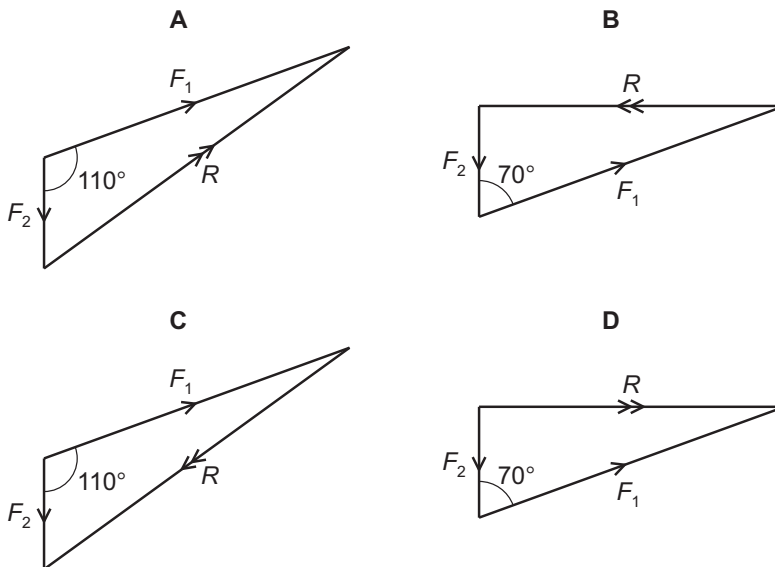
STUDENTS RESOURCE

11. The diagram shows the only two forces F_1 and F_2 acting on an object. The magnitude of each force is represented by the length of each arrow.



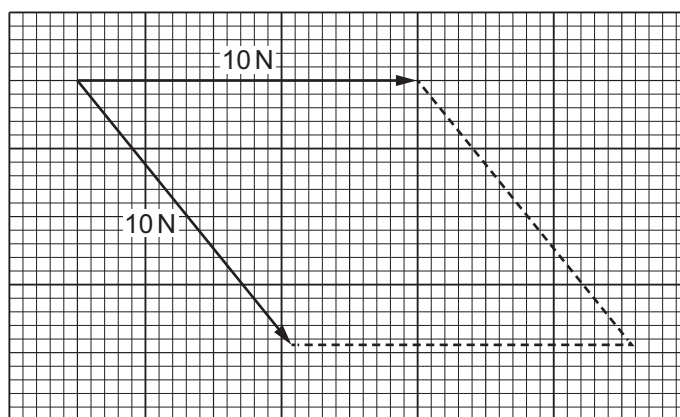
The resultant force acting on the object is R .

Which vector diagram shows how forces F_1 and F_2 add to produce R ?



(M/J/2017/P23/EXT/Q.8)

12. The diagram shows an incomplete scale drawing to find the resultant of two 10 N forces acting at a point in the directions shown.



What is the magnitude of the resultant force?

- A 7.5 N B 8.6 N C 18 N D 20 N

(O/N/2017/P21/EXT/Q.8) (O/N/2017/P22/EXT/Q.8) (O/N/2017/P23/EXT/Q.8)

STUDENT RESOURCE

13. A student measures the volume of a cork. He puts some water into a measuring cylinder and then one glass ball. He puts the cork and then a second, identical glass ball into the water as shown.

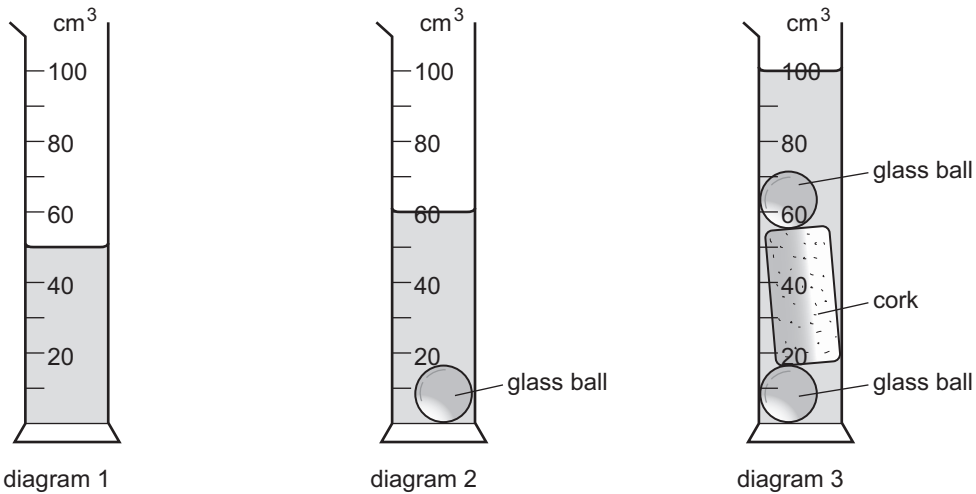
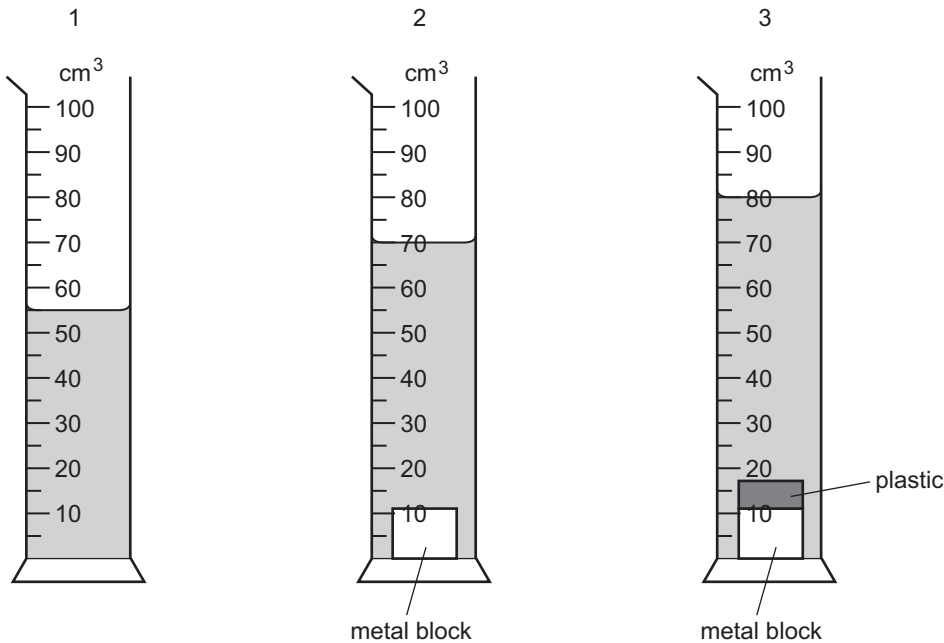


Diagram 1 shows the first water level.
 Diagram 2 shows the water level after one glass ball is added.
 Diagram 3 shows the water level after the cork and the second glass ball are added.
 What is the volume of the cork?

- A 30 cm³ B 40 cm³ C 50 cm³ D 100 cm³

(O/N/2017/P21/EXT/Q.1)

14. A measuring cylinder contains some water. A small metal block is slowly lowered into the water and is then removed. Finally a piece of plastic is attached to the metal block and the block is again slowly lowered into the water. The diagrams show the measuring cylinder at each stage of this process.



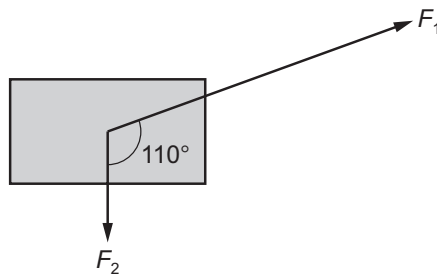
What is the volume of the piece of plastic?

- A 10 cm³ B 25 cm³ C 70 cm³ D 80 cm³

(O/N/2017/P23/EXT/Q.1)

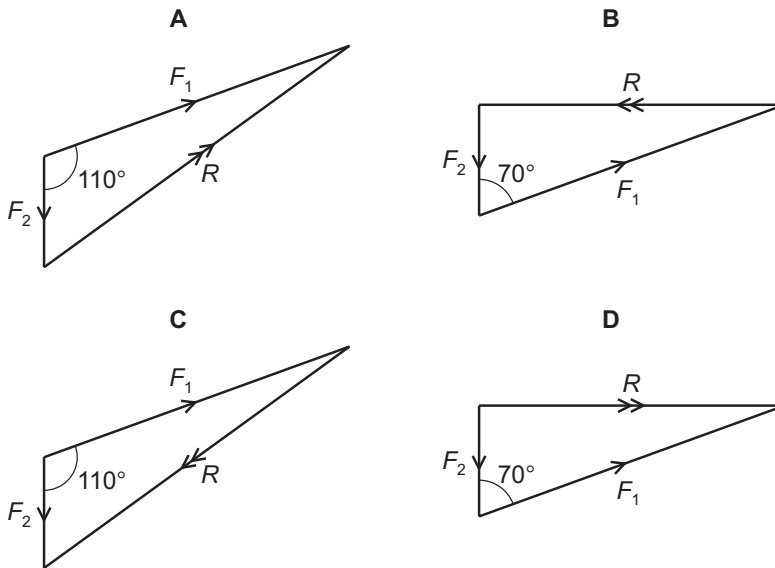
STUDENTS RESOURCE

15. The diagram shows the only two forces F_1 and F_2 acting on an object. The magnitude of each force is represented by the length of each arrow.



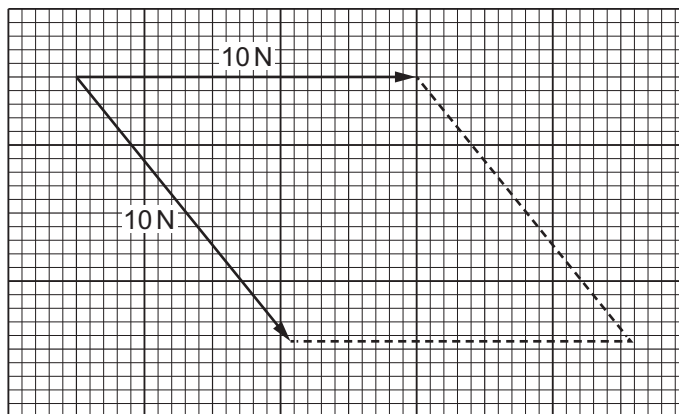
The resultant force acting on the object is R .

Which vector diagram shows how forces F_1 and F_2 add to produce R ?



(M/J/2017/P23/EXT/Q.8)

16. The diagram shows an incomplete scale drawing to find the resultant of two 10 N forces acting at a point in the directions shown.



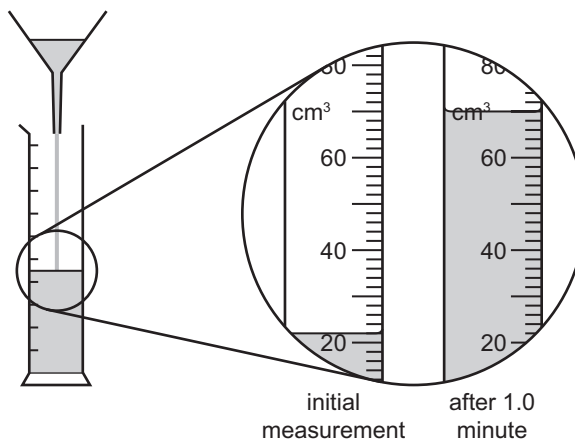
What is the magnitude of the resultant force?

- A 7.5 N B 8.6 N C 18 N D 20 N

(O/N/2017/P21/EXT/Q.8) (O/N/2017/P22/EXT/Q.8) (O/N/2017/P23/EXT/Q.8)

STUDENT'S RESOURCE

17. A student investigates the rate of flow of oil through a funnel. The diagrams show the experiment and the volume of oil in the measuring cylinder at the start of the experiment, and one minute later.

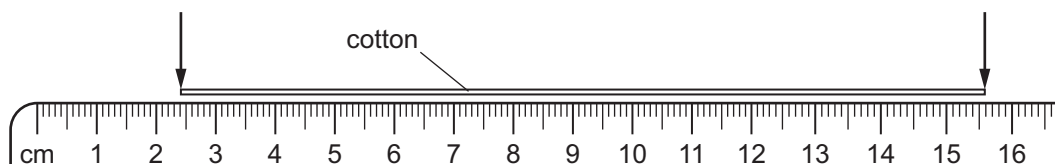


What is the rate of flow of oil through the funnel during the one minute?

- A 0.73 cm³ / s B 0.80 cm³ / s C 44 cm³ / s D 48 cm³ / s

(O/N/2017/P22/EXT/Q.1)

18. A length of cotton is measured between two points on a ruler.



When the length of cotton is wound closely around a pen, it goes round six times.



What is the distance once round the pen?

- A 2.2 cm B 2.6 cm C 13.2 cm D 15.6 cm

(M/J/2018/P21/EXT/Q.1) (M/J/2018/P22/EXT/Q.1) (M/J/2018/P23/EXT/Q.1)

19. An astronaut orbits the Earth in a space station. Which is a vector quantity?

- A the mass of the astronaut C the temperature inside the satellite
 B the speed of the satellite D the weight of the astronaut

(M/J/2018/P23/EXT/Q.8)

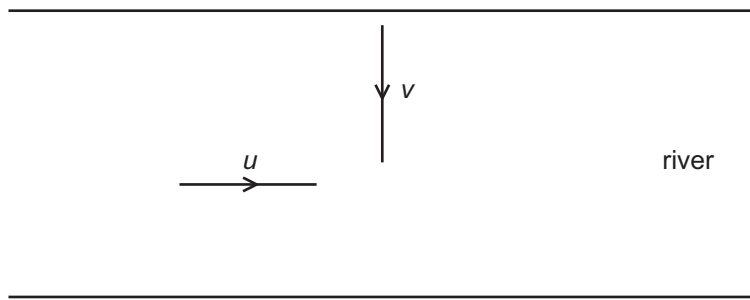
20. Which quantities are both vectors?

- A acceleration and force C density and force
 B acceleration and pressure D density and pressure

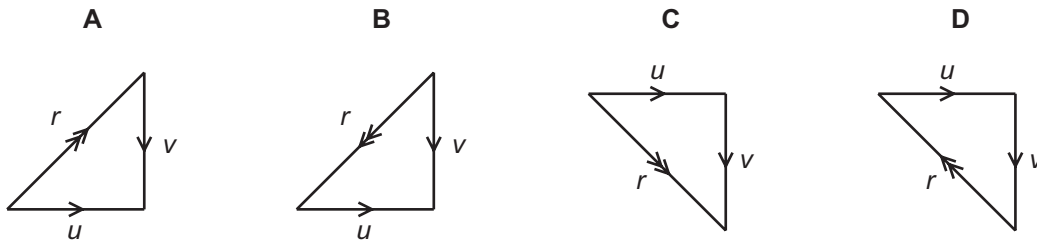
(O/N/2018/P21/EXT/Q.7)

STUDENTS RESOURCE

21. A boat starts moving across a river at velocity v perpendicular to the river bank. The boat encounters a current along the river of velocity u , as shown.



Which vector diagram shows the resultant velocity r of the boat?



(M/J/2019/P21/EXT/Q.8)

22. 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?

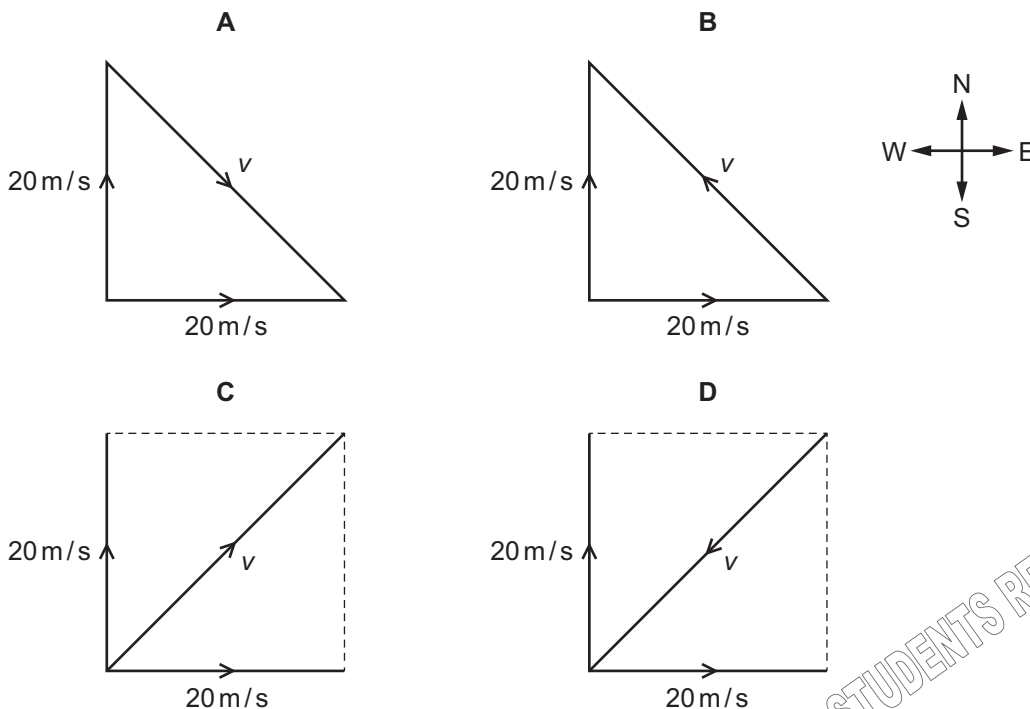
- A 0 m/s B 20 m/s C 28 m/s D 40 m/s

(O/N/2019/P23/EXT/Q.8)

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

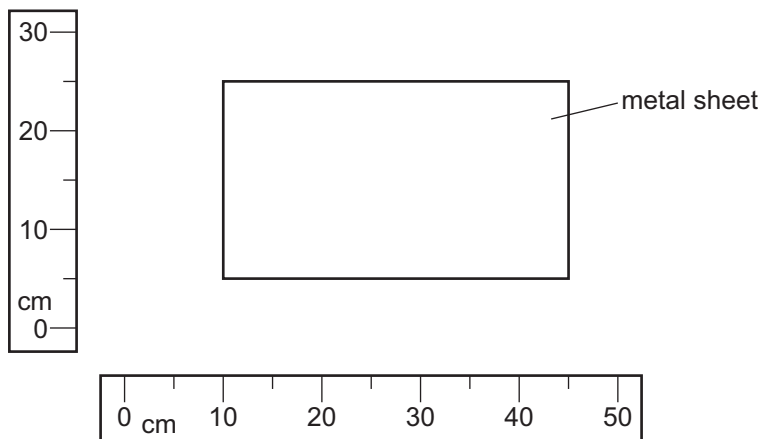
It enters a channel where there is a current in the water from West to East. The speed of the current is 20 m/s.

Which diagram shows the resultant velocity v of the ship?



(O/N/2019/P22/EXT/Q.8)

24. The diagram shows a rectangular metal sheet close to two rulers.



What is the area of the metal sheet?

- A 700 cm² B 875 cm² C 900 cm² D 1125 cm²

(F/M/2020/P22/EXT/Q.1)

25. Five athletes P, Q, R, S and T compete in a race. The table shows the finishing times for the athletes.

athlete	P	Q	R	S	T
finishing time/s	22.50	24.40	25.20	26.50	23.20

Which statement is correct?

- A Athlete P won the race and was 0.70 s ahead of the athlete in second place.
 B Athlete P won the race and was 1.90 s ahead of the athlete in second place.
 C Athlete S won the race and was 1.30 s ahead of the athlete in second place.
 D Athlete S won the race and was 2.10 s ahead of the athlete in second place.

(M/J/2020/P22/EXT/Q.1)

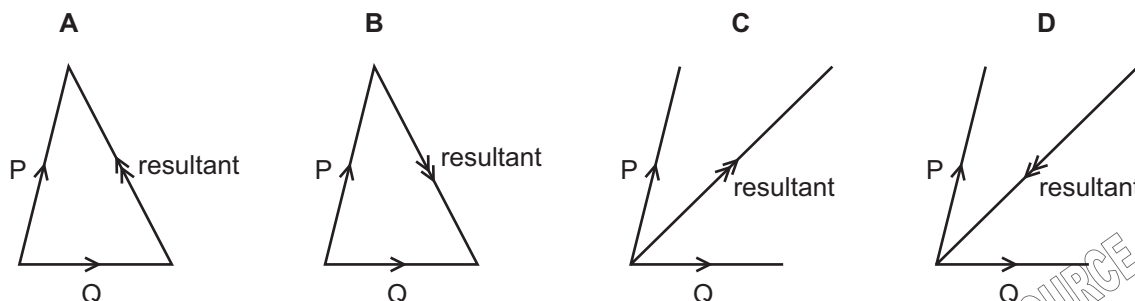
26. Which quantity is a vector?

- A acceleration B distance C speed D mass

(M/J/2020/P21/EXT/Q.8)

27. Two forces P and Q act on an object.

Which diagram shows the resultant of these two forces?



(M/J/2020/P22/EXT/Q.8)

28. Which quantity is **not** a vector?

- A acceleration B temperature C velocity D weight

(M/J/2020/P23/EXT/Q.8)

29. A pendulum makes 50 complete swings in 2 min 40 s.
 What is the time period for 1 complete swing?
- A 1.6 s B 3.2 s C 4.8 s D 6.4 s

(M/J/2020/P21/EXT/Q.1)

30. Diagram 1 shows a solid, rectangular-sided block.

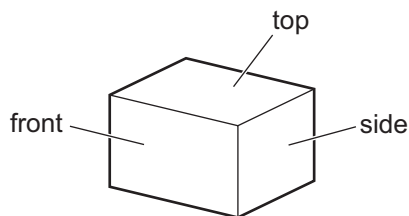


diagram 1

Diagram 2 shows the same block from the front and from the side.

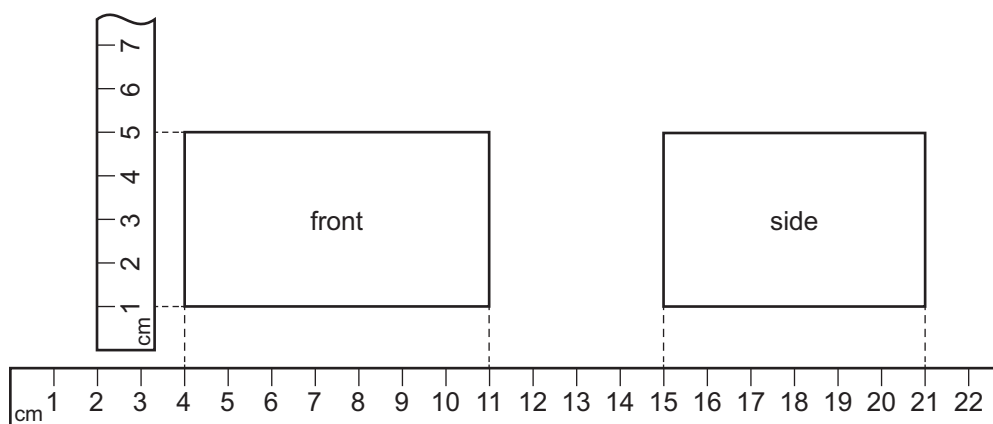


diagram 2

Metre rules have been shown close to the edges of the block.

What is the volume of the block?

- A 120 cm³ B 168 cm³ C 264 cm³ D 1155 cm³

(M/J/2020/P23/EXT/Q.1)

31. A student has a measuring cylinder containing water and also has a balance.
 Which of these could she use to find the volume of a small metal sphere?
 She has no other apparatus.

- A either the measuring cylinder containing water or the balance
 B the measuring cylinder containing water only
 C the balance only
 D neither the measuring cylinder nor the balance

(F/M/2021/P22/Q.1)

32. The diagram shows a stone of irregular shape.



STUDENTS RESOURCE

Which property of the stone can be found by lowering it into a measuring cylinder half-filled with water?

- A length B mass C volume D weight

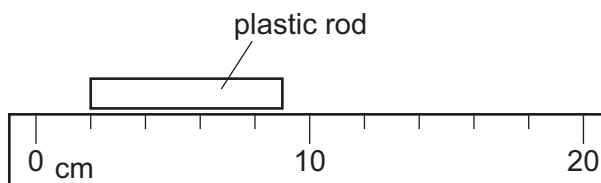
(M/J/2021/P21/Q.1)

33. Which row describes speed and velocity?

	speed	velocity
A	scalar	scalar
B	scalar	vector
C	vector	scalar
D	vector	vector

(M/J/2021/P21/Q.2)

34. The diagram shows a plastic rod alongside a ruler.



What is the length of the rod?

- A 2.5 cm B 3.5 cm C 7.0 cm D 9.0 cm

(M/J/2021/P23/Q.1)

35 Which piece of apparatus is the most suitable for measuring the mass of a pencil sharpener?

- A digital balance C newton meter
 B measuring cylinder D ruler

(M/J/2021/P22/Q.1)

36 A student investigates a pendulum. He measures the time for the pendulum to complete 20 oscillations. He repeats the experiment three more times. The readings are shown.

experiment	time for 20 oscillations / s
1	17.6
2	19.8
3	17.6
4	18.6

What is the average period of the pendulum?

- A 0.88 s B 0.92 s C 17.6 s D 18.4 s

(F/M/2022/P22/Q.1)

STUDENTS RESOURCE

37 Which physical quantity is a vector?

- A mass B density C temperature D velocity

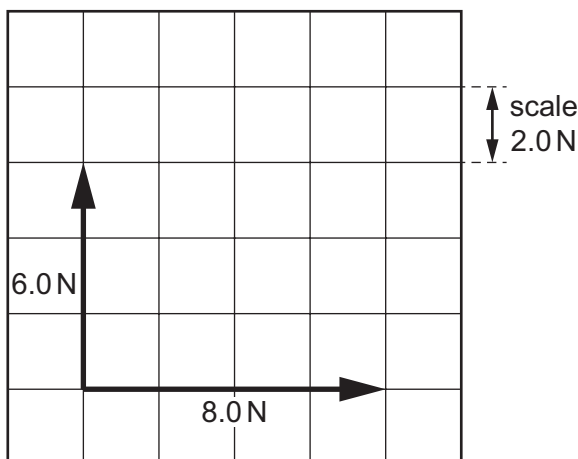
(F/M/2022/P22/Q.9)

38 Which measuring devices are most suitable for determining the length of a swimming pool and the thickness of aluminium foil?

	length of a swimming pool	thickness of aluminium foil
A	ruler	measuring cylinder
B	tape measure	micrometer screw gauge
C	tape measure	ruler
D	ruler	micrometer screw gauge

(M/J/2022/P21/Q.1)

39 On the diagram shown, what is the magnitude of the resultant force of the two vectors?



- A 2.0 N B 7.0 N C 10 N D 14 N

(M/J/2022/P21/Q.8) (M/J/2022/P22/Q.8)

40 Very small values of which quantity are measured using a micrometer screw gauge?

- A time B pressure C moment D distance

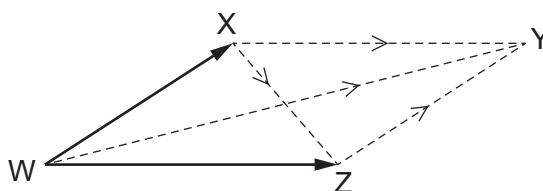
(M/J/2022/P22/Q.1)

41 What is a micrometer screw gauge used to measure?

- A very small currents C very small forces
 B very small distances D very small pressures

(M/J/2022/P23/Q.1)

42 Two vectors, WX and WZ, are as shown.



What is the resultant of the vectors?

- A WY B XY C XZ D ZY

(M/J/2022/P23/Q.8)

43 Which measuring instrument is used to measure the diameter of a thin metal wire?

- A 30 cm rule B measuring tape C metre rule D micrometre screw gauge

(O/N/2022/P21/Q.1)

44 Which measuring devices are most suitable to determine the volume of about 200 ml of liquid and the diameter of a thin wire?

	volume of about 200 ml of liquid	diameter of a thin wire
A	measuring cylinder	micrometer screw gauge
B	measuring cylinder	ruler
C	ruler	measuring cylinder
D	ruler	micrometer screw gauge

(O/N/2022/P22/Q.1)

45 A wire is approximately 48 cm long and has an approximate diameter of 0.3 mm.

Which measuring instruments can be used to obtain more precise values of the dimensions of the wire?

	length of the wire	diameter of the wire
A	30 cm ruler	micrometer
B	half-metre rule	30 cm rule
C	half-metre rule	micrometer
D	micrometer	half-metre rule

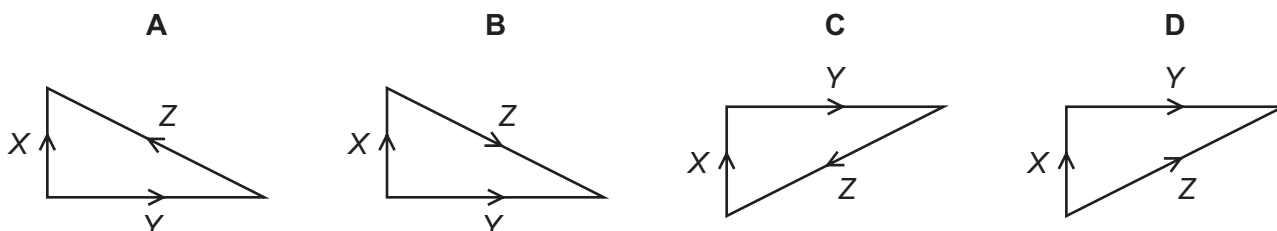
(O/N/2022/P23/Q.1)

46 Which list contains two scalar quantities and two vector quantities?

- A distance, speed, time, velocity C mass, energy, temperature, momentum
 B force, velocity, distance, mass D weight, acceleration, momentum, speed

(F/M/2023/P22/Q.1)

47 Which vector diagram correctly shows the force Z as the resultant of forces X and Y?



(M/J/2023/P21/Q.1)

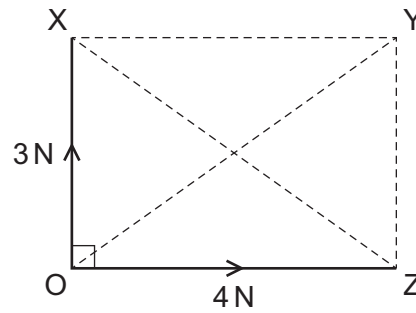
48 An aircraft is moving at 60 m/s in a northerly direction when a cross-wind from the east starts to blow. The speed of the wind is 13 m/s.

What is the magnitude of the aircraft's velocity when the wind is blowing?

- A 47 m/s B 59 m/s C 61 m/s D 73 m/s

(M/J/2023/P23/Q.3)

49 Forces of 3 N and 4 N act at right angles, as shown.



What is the resultant force?

- A 1 N along XZ B 5 N along XZ C 5 N along OY D 7 N along OY

(M/J/2023/P22/Q.1)

STUDENTS RESOURCE

1.2 Motion

1. Which is a unit of acceleration?

- A g/cm^3 B m/s C m/s^2 D N/m

(F/M/2016/P22/EXT/Q.2)

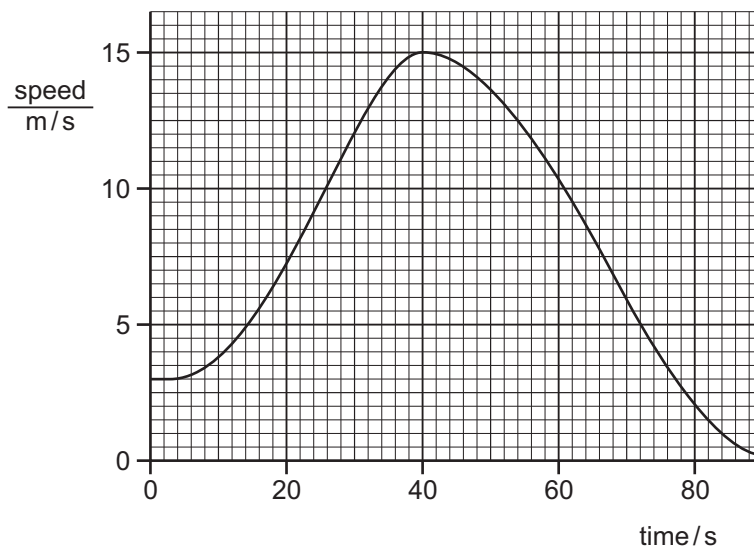
2. An object is released from rest and falls to Earth. During its fall, the object is affected by air resistance. The air resistance eventually reaches a constant value.

Which description about successive stages of the motion of the object is correct?

- A constant acceleration, then constant deceleration
 B constant deceleration, then zero acceleration
 C decreasing acceleration, then constant deceleration
 D decreasing acceleration, then zero acceleration

(F/M/2016/P22/EXT/Q.3)

3. The speed-time graph shown is for a car moving in a straight line.



What is the acceleration of the car when the time is 40 s?

- A 0 m/s^2 B $\frac{15-3}{40} \text{ m/s}^2$ C $\frac{15}{40} \text{ m/s}^2$ D $(15-3) \text{ m/s}^2$

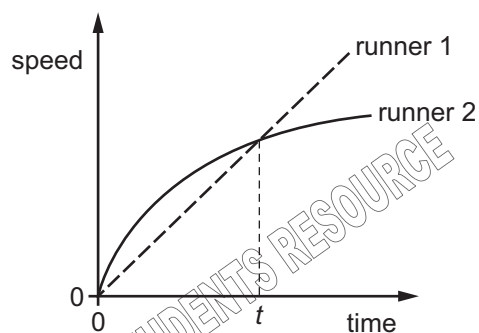
(M/J/2016/P21/EXT/Q.2)

4. Two runners take part in a race.

The graph shows how the speed of each runner changes with time.

What does the graph show about the runners at time t ?

- A Both runners are moving at the same speed.
 B Runner 1 has zero acceleration.
 C Runner 1 is overtaking runner 2.
 D Runner 2 is slowing down.

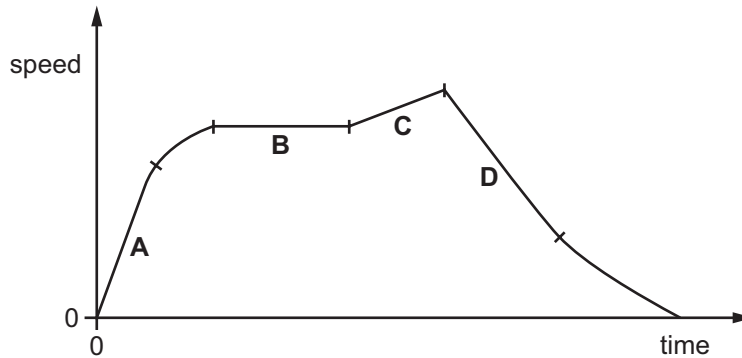


(M/J/2016/P21/EXT/Q.3)

1.2 Motion

IGCSE Physics Topical MCQs

5. A car travels along a straight road.
The speed-time graph for this journey is shown.
During which labelled part of the journey is the resultant force on the car zero?



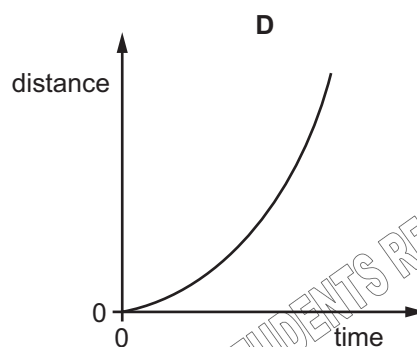
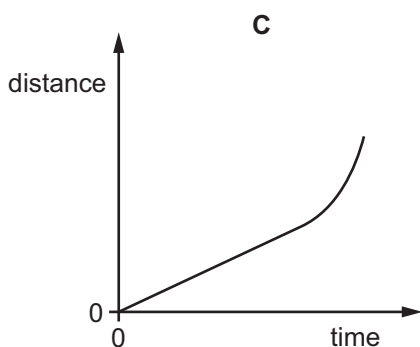
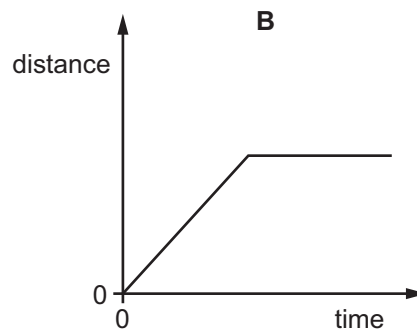
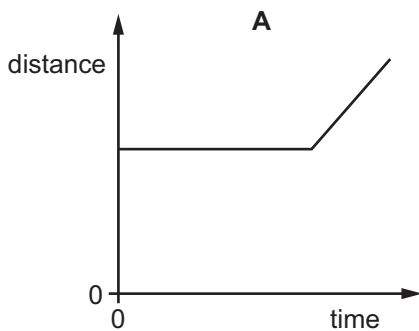
(M/J/2016/P22/EXT/Q.2)

6. A large stone is dropped from a bridge into a river. Air resistance can be ignored.
Which row describes the acceleration and the speed of the stone as it falls?

	acceleration of the stone	speed of the stone
A	constant	constant
B	constant	increasing
C	increasing	constant
D	increasing	increasing

(M/J/2016/P22/EXT/Q.3)

7. An object moves at a constant speed for some time, then begins to accelerate.
Which distance-time graph shows this motion?



(M/J/2016/P23/EXT/Q.2)

1.2 Motion

IGCSE Physics Topical MCQs

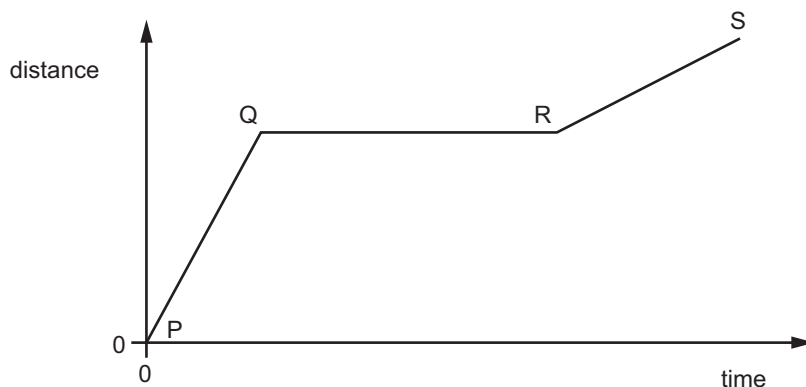
8. Below are four statements about acceleration. Which statement is **not** correct?
- A Acceleration always involves changing speed.
 - B Changing direction always involves acceleration.
 - C Changing speed always involves acceleration.
 - D Circular motion always involves acceleration.

(M/J/2016/P22/EXT/Q.5)

9. A heavy object is released near the surface of the Earth and falls freely. Air resistance can be ignored. Which statement about the acceleration of the object due to gravity is correct?
- A The acceleration depends on the mass of the object.
 - B The acceleration depends on the volume of the object.
 - C The acceleration is constant.
 - D The acceleration is initially zero and increases as the object falls.

(M/J/2016/P23/EXT/Q.3)

10. The graph shows how the distance travelled by a vehicle changes with time.

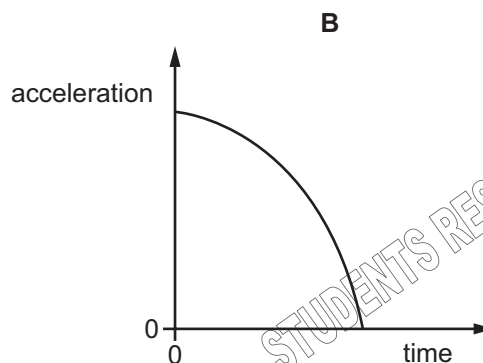
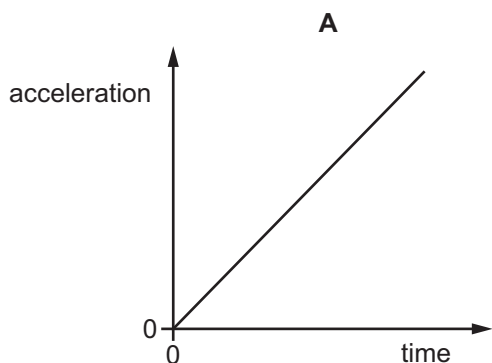


Which row describes the speed of the vehicle in each section of the graph?

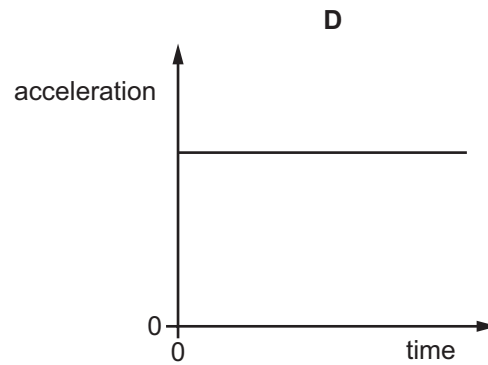
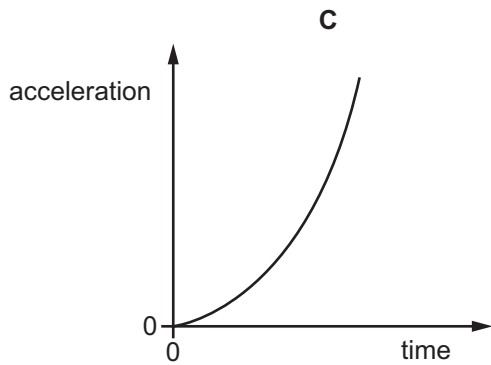
	P to Q	Q to R	R to S
A	constant	zero	constant
B	constant	zero	decreasing
C	increasing	constant	decreasing
D	increasing	zero	constant

(O/N/2016/P21/EXT/Q.1) (O/N/2016/P22/EXT/Q.1) (O/N/2016/P23/EXT/Q.1)

11. A stone falls freely from the top of a cliff. Air resistance may be ignored. Which graph shows how the acceleration of the stone varies with time as it falls?

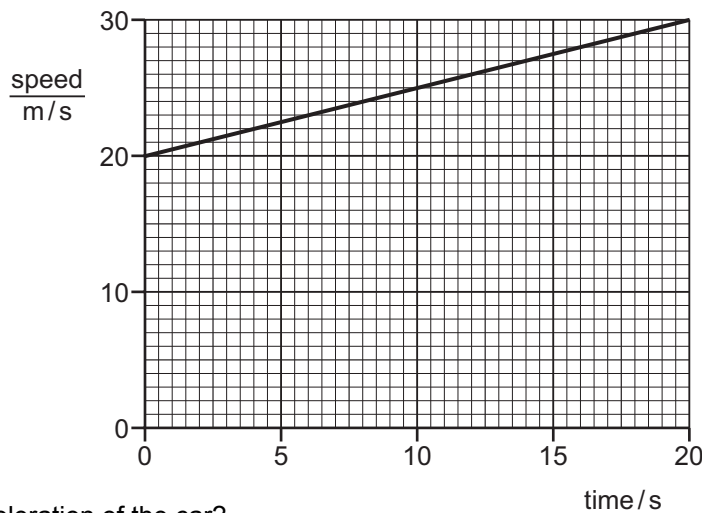


STUDENTS RESOURCE



(O/N/2016/P21/EXT/Q.2) (O/N/2016/P22/EXT/Q.2) (O/N/2016/P23/EXT/Q.2)

12. A car travels along a horizontal road in a straight line. The driver presses the accelerator to increase the speed of the car.
The speed-time graph for the car is shown.

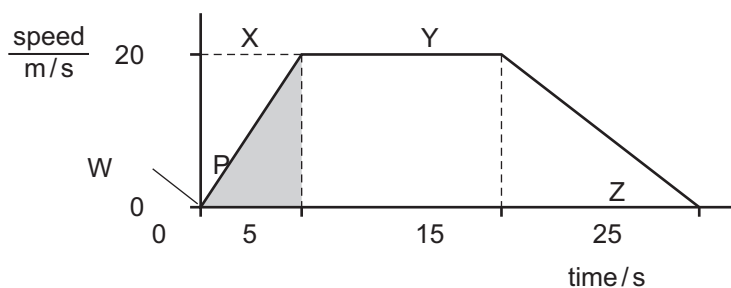


What is the acceleration of the car?

- A** 0.50 m/s^2 **B** 1.00 m/s^2 **C** 1.50 m/s^2 **D** 2.00 m/s^2

(O/N/2016/P21/EXT/Q.3)

13. The speed-time graph for an object is shown.



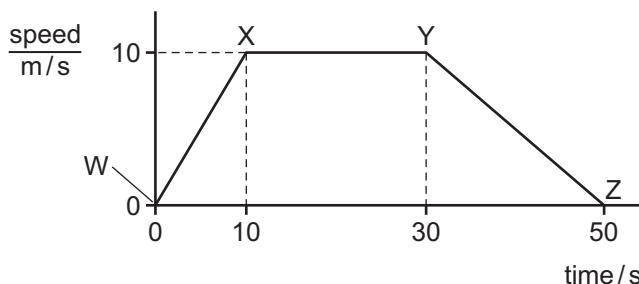
Below are four statements about the acceleration of the object.
Which statement is correct?

- A** The acceleration in the first 5 s is given by area P.
B The acceleration increases between W and X.
C The acceleration is negative between Y and Z.
D The deceleration between Y and Z is $(20 \div 25) \text{ m/s}^2$.

STUDENTS RESOURCE

(O/N/2016/P22/EXT/Q.3)

14. The speed-time graph for an object is shown.

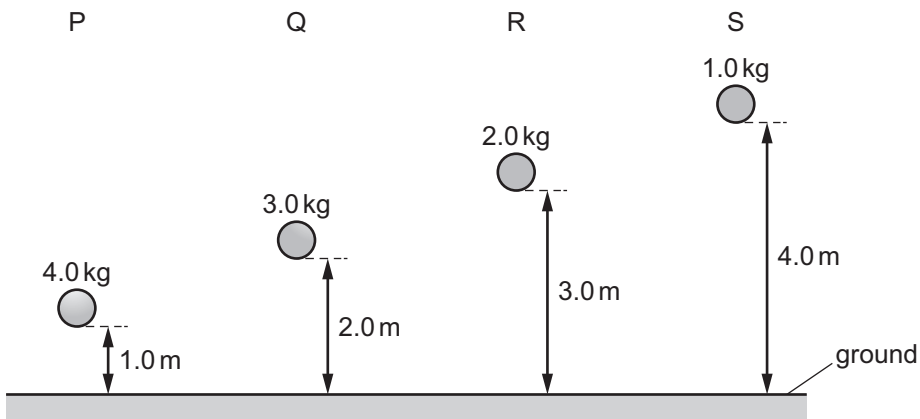


Below are four statements about the acceleration of the object. Which statement is true?

- A The acceleration in the first 10 s is $(10 \div 10) \text{ m/s}^2$.
- B The acceleration increases between W and X.
- C The acceleration decreases between Y and Z.
- D The deceleration between Y and Z is $(10 \div 50) \text{ m/s}^2$.

(O/N/2016/P23/EXT/Q.3)

15. Four balls with different masses are dropped from the heights shown.

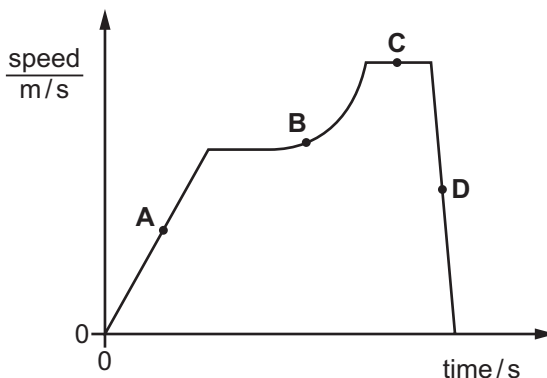


Air resistance may be ignored. Which statement about the balls is correct?

- A Ball P has the greatest acceleration.
- B Balls Q and R take the same time to fall to the ground.
- C The acceleration of ball R is half the acceleration of ball P.
- D Ball S has the greatest average speed.

(F/M/2017/P22/EXT/Q.2)

16. An object is travelling in a straight line. The diagram is the speed-time graph for the object. At which labelled point is the object accelerating at a changing rate?



(F/M/2017/P22/EXT/Q.3)

1.2 Motion

IGCSE Physics Topical MCQs

17. A skydiver jumps from a stationary helicopter and reaches a steady vertical speed. She then opens her parachute.

Which statement about the falling skydiver is correct?

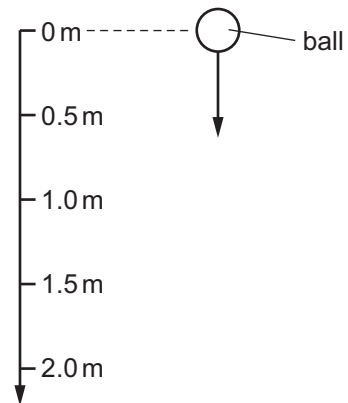
- A As her parachute opens, her acceleration is upwards.
- B As she falls at a steady speed with her parachute open, her weight is zero.
- C When she accelerates, the resultant force on her is zero.
- D When she falls at a steady speed, air resistance is zero.

(F/M/2017/P22/EXT/Q.6)

18. On Earth, a ball is dropped and falls 2.0 m in a vacuum. The acceleration of the ball at 1.0 m is 10 m/s^2 .

What is the acceleration of the ball at 0.5 m?

- A 5.0 m/s^2
- B 10 m/s^2
- C 15 m/s^2
- D 20 m/s^2



(M/J/2017/P21/EXT/Q.2)

19. A skydiver reaches terminal velocity. Then he opens his parachute.

What happens to the skydiver as the parachute opens?

- | | |
|----------------------------------|----------------------------------|
| A There is a decrease in weight. | C There is an increase in speed. |
| B There is acceleration upwards. | D There is movement upwards. |

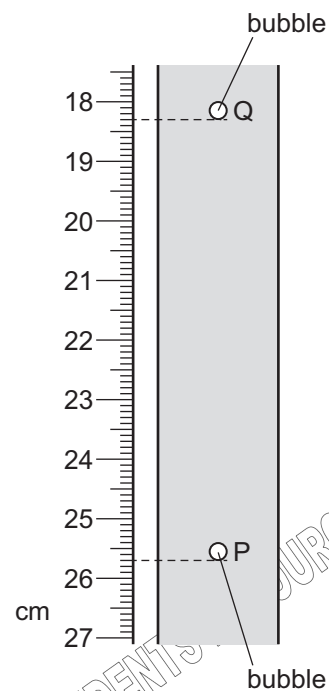
(M/J/2017/P21/EXT/Q.3)

20. A student determines the average speed of a bubble rising through a liquid at constant speed.

When the student starts the stopwatch the bubble is at position P. After 2.0 s the bubble is at position Q.

What is the speed of the bubble between P and Q?

- A 3.2 cm/s
- B 3.7 cm/s
- C 6.4 cm/s
- D 7.4 cm/s



(M/J/2017/P22/EXT/Q.2)