Topical Past Papers

IGCSE Physics (0625) Paper 1

[Core | Multiple Choice Questions]

Exam Series: February/March 2017 – May/June 2025

Format Type A:
Answers to all questions are provided as an appendix

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Introduction

Each Topical Past Paper Questions Compilation contains a comprehensive collection of hundreds of questions and corresponding answer schemes, presented in worksheet format. The questions are carefully arranged according to their respective chapters and topics, which align with the latest IGCSE or AS/A Level subject content. Here are the key features of these resources:

1. The workbook covers a wide range of topics, which are organized according to the latest syllabus content for Cambridge IGCSE or AS/A Level exams.
2. Each topic includes numerous questions, allowing students to practice and reinforce their understanding of key concepts and skills.
3. The questions are accompanied by detailed answer schemes, which provide clear explanations and guidance for students to improve their performance.
4. The workbook's format is user-friendly, with worksheets that are easy to read and navigate.
5. This workbook is an ideal resource for students who want to familiarize themselves with the types of questions that may appear in their exams and to develop their problem-solving and analytical skills.

Overall, Topical Past Paper Questions Workbooks are a valuable tool for students preparing for IGCSE or AS/A level exams, providing them with the opportunity to practice and refine their knowledge and skills in a structured and comprehensive manner. To provide a clearer description of this book's specifications, here are some key details:

- Title: Cambridge IGCSE Physics (0625) Paper 1 Topical Past Papers
- Subtitle: Exam Practice Worksheets With Answer Scheme
- Examination board: Cambridge Assessment International Education (CAIE)
- Subject code: 0625
- Years covered: February/March 2017 – May/June 2025
- Paper: 1
- Number of pages: 1182
- Number of questions: 2400

Contents

Chapter 1

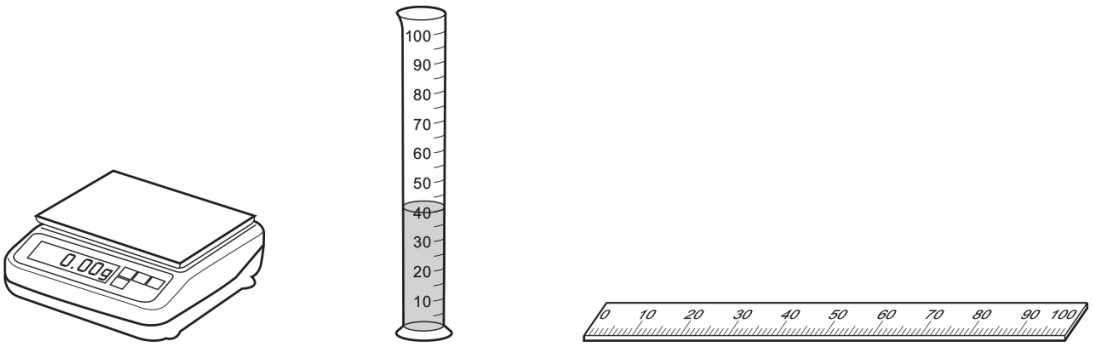
Motion, forces and energy

1.1 Physical quantities and measurement techniques

1. 0625_m25_qp_12 Q: 1

A student is asked to find the volume of a small irregularly shaped piece of rock.

The student has the following apparatus available.



balance | measuring cylinder containing water | ruler

Which apparatus must the student use to find the volume of the small piece of rock?

A balance and ruler

B ruler only

C balance and measuring cylinder

D measuring cylinder only

2. 0625_m25_qp_12 Q: 2

A digital stop-clock measures time in minutes and seconds.

The stop-clock reads 00:50 when it is started (i.e. 00 minutes 50 seconds).

It reads 02:10 when it is stopped.

What is the shortest possible time that has passed between starting and stopping the stop-clock?

A 1 minute 06 seconds

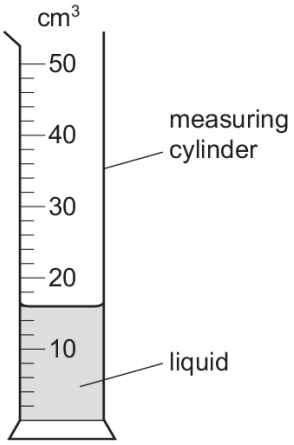
B 1 minute 20 seconds

C 2 minutes 10 seconds

D 3 minutes 00 seconds

3. 0625_s25_qp_11 Q: 1

The diagram shows a measuring cylinder containing liquid.



What is the volume of liquid in the measuring cylinder?

A 13.0 cm^3 **B** 13.5 cm^3 **C** 16.0 cm^3 **D** 17.0 cm^3

4. 0625_s25_qp_12 Q: 1

A pendulum starts swinging and its motion is timed. The time measured for 20 complete swings is 30 s.

What is the time for **one** complete swing of the pendulum?

A 0.67 s **B** 0.75 s **C** 1.5 s **D** 3.0 s

5. 0625_s25_qp_12 Q: 2

Which piece of apparatus is used to determine the volume of an irregularly shaped solid?

A balance

B measuring cylinder

C ruler

D thermometer

6. 0625_s25_qp_13 Q: 1

A pendulum starts swinging and its motion is timed. The time measured for 20 complete swings is 30 s.

What is the time for **one** complete swing of the pendulum?

A 0.67 s **B** 0.75 s **C** 1.5 s **D** 3.0 s

7. 0625_s25_qp_13 Q: 2

Which piece of apparatus is used to determine the volume of an irregularly shaped solid?

A balance

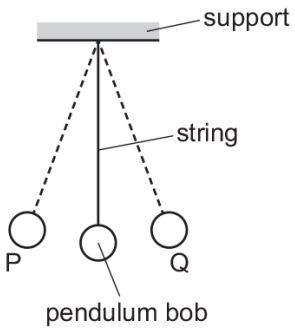
B measuring cylinder

C ruler

D thermometer

8. 0625_m24_qp_12 Q: 1

The diagram shows a pendulum that oscillates between P and Q.



Which method is used to find the average period of oscillation for the pendulum?

A Measure the time it takes to swing from P to Q.

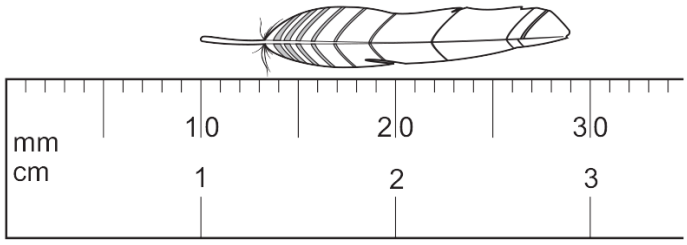
B Measure the time it takes to swing from P to Q to P 10 times and divide that time by 10.

C Measure the time it takes to swing from P to Q to P 10 times and multiply that time by 10.

D Measure the time it takes to swing from Q to P.

9. 0625_s24_qp_11 Q: 1

The diagram shows an enlarged drawing of the end of a metre ruler. 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

10. 0625_s24_qp_12 Q: 1

Four athletes run twice around a track. The table shows their times at the end of each lap.

Which athlete runs the second lap the fastest?

	time at end of first lap / s	time at end of second lap / s
A	22.99	47.04
B	23.04	47.00
C	23.16	47.18
D	23.39	47.24

11. 0625_s24_qp_12 Q: 2

A racing car is fitted with an on-board computer. Every time the car passes the starting line, the computer records the distance travelled in the following two seconds.

Which set of data shows that the car is increasing in speed during the two seconds?

A

time / s	distance travelled / m
0	0
1	100
2	200

B

time / s	distance travelled / m
0	0
1	90
2	180

C

time / s	distance travelled / m
0	0
1	80
2	190

D

time / s	distance travelled / m
0	0
1	100
2	180

12. 0625_s24_qp_12 Q: 3

Which row shows the gravitational field strength on the Earth and the definition of velocity?

	gravitational field strength on the Earth	definition of velocity
A	9.8 kg / N	the change in the speed
B	9.8 N / kg	the change in the speed
C	9.8 kg / N	the speed in a given direction
D	9.8 N / kg	the speed in a given direction

13. 0625_s24_qp_13 Q: 1

A student wishes to find the volume of a small, irregularly shaped stone.

A ruler and a measuring cylinder containing some water are available.

Which apparatus is needed?

A neither the ruler nor the measuring cylinder

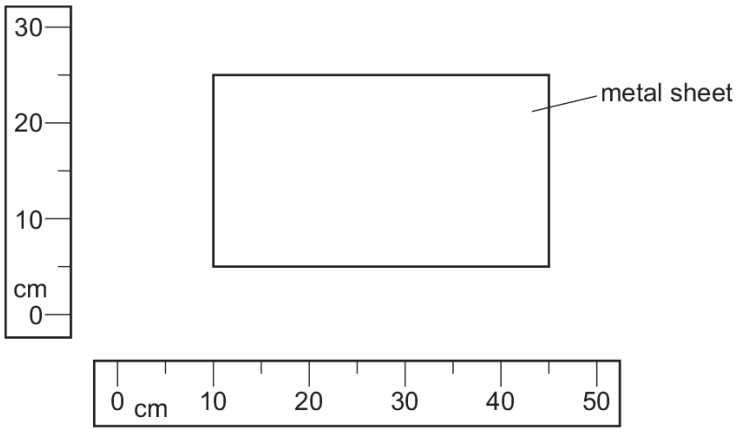
B the measuring cylinder only

C the ruler and the measuring cylinder

D the ruler only

14. 0625_w24_qp_11 Q: 1

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

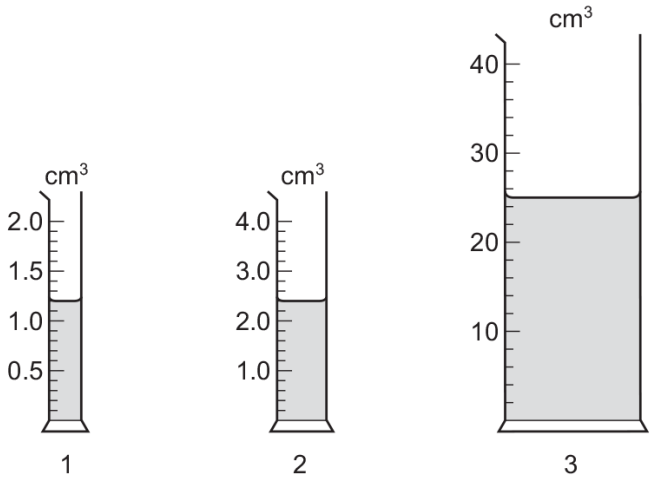


What is the area of the metal sheet?

A 700 cm^2 **B** 875 cm^2 **C** 900 cm^2 **D** 1125 cm^2

15. 0625_w24_qp_12 Q: 1

A student measures the volumes of three liquids using three different measuring cylinders.



The table shows the volumes recorded by the student.

measuring cylinder	volume / cm^3
1	1.2
2	2.2
3	25

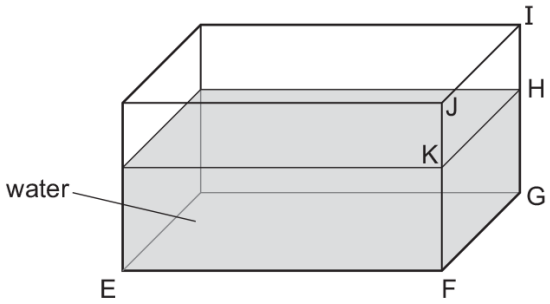
Which readings are correctly recorded?

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 1 only

16. 0625_w24_qp_13 Q: 1

A student uses a ruler to find the volume of water in a tank.

She measures the lengths EF and FG.



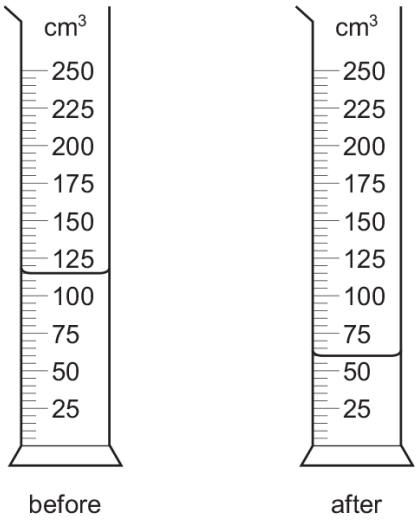
What other length does she need to measure?

A FJ **B** FK **C** HI **D** IJ

17. 0625_m23_qp_12 Q: 1

A measuring cylinder contains water.

The diagrams show the measuring cylinder before and after some of the water is poured into a beaker.



How much water has been poured into the beaker?

A 51 cm^3 **B** 52 cm^3 **C** 55 cm^3 **D** 63 cm^3

18. 0625_s23_qp_12 Q: 1

Which single apparatus is used to find the volume of a solid cube and which single apparatus is used to find the volume of a quantity of liquid?

	volume of solid cube	volume of liquid
A	balance	balance
B	balance	measuring cylinder
C	ruler	balance
D	ruler	measuring cylinder

19. 0625_s23_qp_13 Q: 1

Which piece of apparatus is used to measure the length of a copper rod of length approximately 2 cm?

A digital timer

B measuring cylinder

C ruler

D balance

20. 0625_w23_qp_11 Q: 1

In order to determine the period of a pendulum, a student times one complete swing of the pendulum using an analogue stop-watch with a second hand.

Which change of method produces the greatest improvement in accuracy?

A asking a friend with a shorter reaction time to take the measurement

B measuring the time for 100 swings of the pendulum and dividing it by 100

C measuring the time for a half swing of the pendulum and doubling it

D using a digital timer

21. 0625_w23_qp_12 Q: 1

A student investigates the oscillation of a mass suspended from a spring.

The student pulls the mass down from its rest position P and then releases it so that it oscillates vertically.

The student then follows the instructions listed to find the period of the oscillating mass.

1 Count 10 complete oscillations.

2 Divide the time on the stop-watch by 10.

3 Start the stop-watch as the mass passes upwards through point P.

4 Stop the stop-watch.

What is the correct order of these instructions?

A $1 \rightarrow 3 \rightarrow 4 \rightarrow 2$

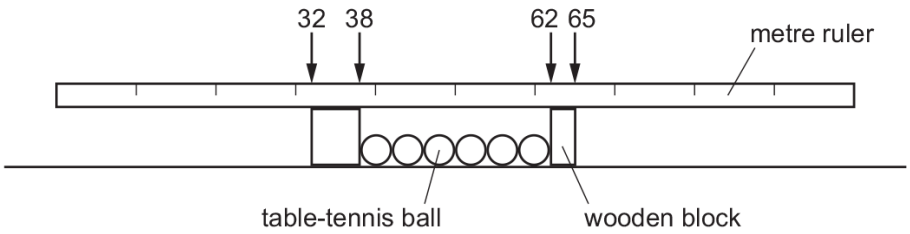
B $3 \rightarrow 1 \rightarrow 4 \rightarrow 2$

C $3 \rightarrow 4 \rightarrow 1 \rightarrow 2$

D $4 \rightarrow 3 \rightarrow 2 \rightarrow 1$

22. 0625_w23_qp_13 Q: 1

A student uses a metre ruler to measure the length of six identical table-tennis balls placed between two wooden blocks.



What is the diameter of one ball?

A 4 cm **B** 5 cm **C** 6 cm **D** 8 cm

23. 0625_m22_qp_12 Q: 1

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.

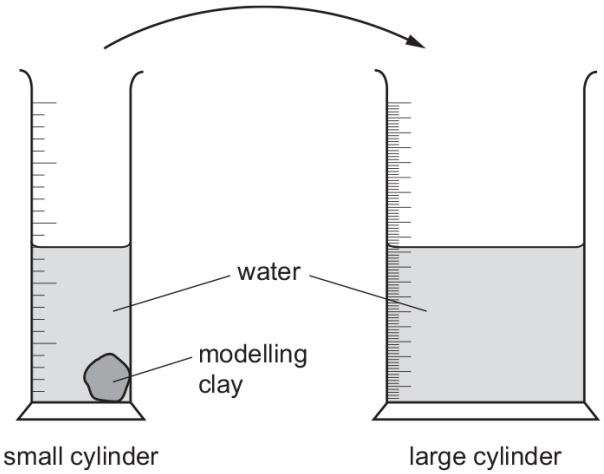
experiment	time for 20 oscillations / s
1	17.6
2	19.8
3	17.6
4	18.6

What is the average period of the pendulum?

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

24. 0625_s22_qp_11 Q: 1

A lump of modelling clay is moved from a small measuring cylinder to a large measuring cylinder that has twice the diameter.



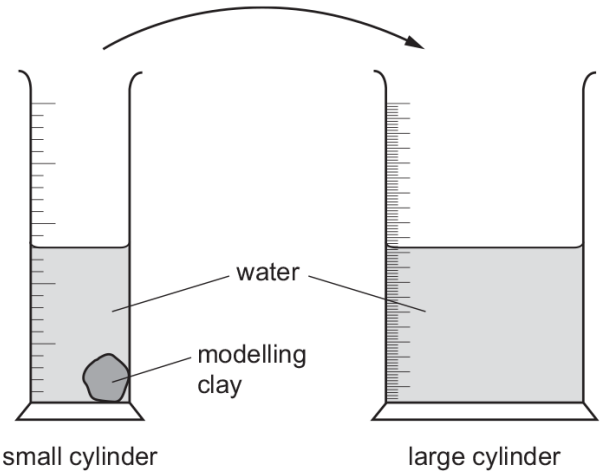
The reading on the small measuring cylinder goes down by 20 cm^3.

By how much does the reading on the large cylinder go up?

A 10 cm^3 **B** 20 cm^3 **C** 40 cm^3 **D** 80 cm^3

25. 0625_s22_qp_12 Q: 1

A lump of modelling clay is moved from a small measuring cylinder to a large measuring cylinder that has twice the diameter.



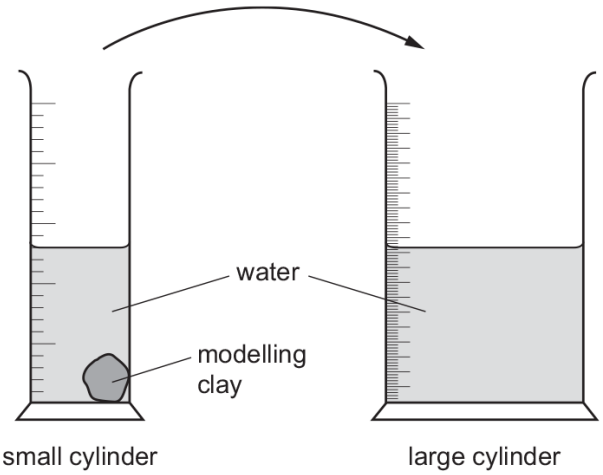
The reading on the small measuring cylinder goes down by 20 cm^3.

By how much does the reading on the large cylinder go up?

A 10 cm^3 **B** 20 cm^3 **C** 40 cm^3 **D** 80 cm^3

26. 0625_s22_qp_13 Q: 1

A lump of modelling clay is moved from a small measuring cylinder to a large measuring cylinder that has twice the diameter.



The reading on the small measuring cylinder goes down by 20 cm^3.

By how much does the reading on the large cylinder go up?

A 10 cm^3 **B** 20 cm^3 **C** 40 cm^3 **D** 80 cm^3

27. 0625_w22_qp_11 Q: 1

The times for 10 swings of a pendulum are measured.

measurement	time for 10 swings / s
1	10.12
2	10.48
3	10.24

What is the average time for **one** swing?

A 1.028 s **B** 1.036 s **C** 1.042 s **D** 10.28 s

28. 0625_w22_qp_12 Q: 1

Which measuring instrument can be used to find the volume of a small stone?

A measuring cylinder partly filled with water

B measuring tape

C metre rule

D protractor

29. 0625_w22_qp_13 Q: 1

A student uses a ruler to measure the length of a spring.

His results are shown.

14.9 cm 14.8 cm 14.8 cm 14.7 cm

What is the average length of the spring to three significant figures?

A 14.8 cm **B** 14.9 cm **C** 15.0 cm **D** 15 cm

30. 0625_m21_qp_12 Q: 1

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

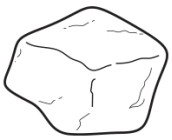
B the measuring cylinder containing water only

C the balance only

D neither the measuring cylinder nor the balance

31. 0625_s21_qp_11 Q: 1

The diagram shows a stone of irregular shape.



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

32. 0625_s21_qp_12 Q: 1

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

A digital balance

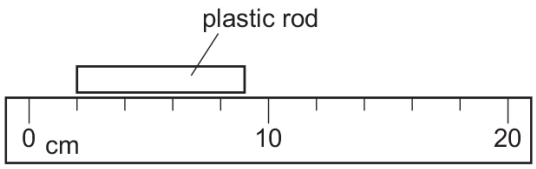
B measuring cylinder

C newton meter

D ruler

33. 0625_s21_qp_13 Q: 1

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

34. 0625_w21_qp_11 Q: 1

A student measures the volume of a quantity of water.

Which apparatus is suitable?

A a balance

B a measuring cylinder

C a ruler

D a thermometer

35. 0625_w21_qp_12 Q: 1

Which list places units of length in increasing order of magnitude (size)?

A cm → mm → m

B mm → cm → m

C mm → m → cm

D m → mm → cm

36. 0625_w21_qp_13 Q: 1

A teacher asks a student to measure the volume of a pencil sharpener.

Which piece of apparatus would **not** be useful?

A beaker

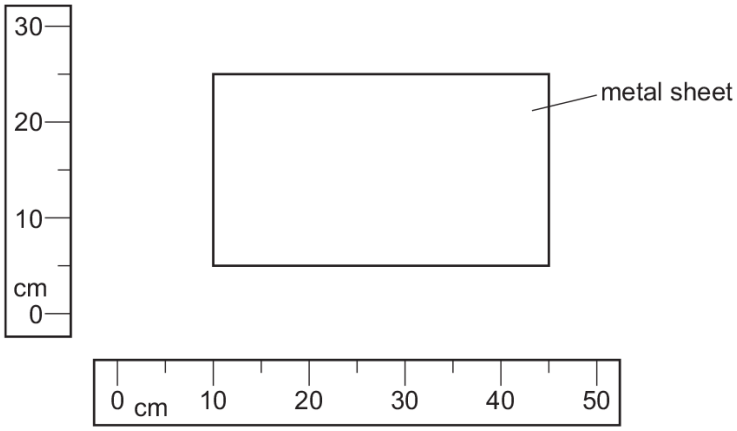
B displacement can

C balance

D measuring cylinder

37. 0625_m20_qp_12 Q: 1

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



What is the area of the metal sheet?

A 700 cm^2 **B** 875 cm^2 **C** 900 cm^2 **D** 1125 cm^2

38. 0625_s20_qp_11 Q: 1

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

39. 0625_s20_qp_12 Q: 1

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.

40. 0625_s20_qp_13 Q: 1

Diagram 1 shows a solid, rectangular-sided block.

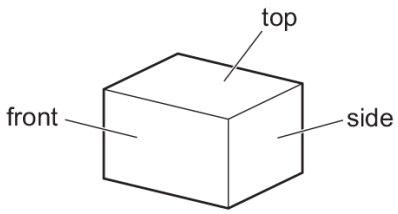


diagram 1

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

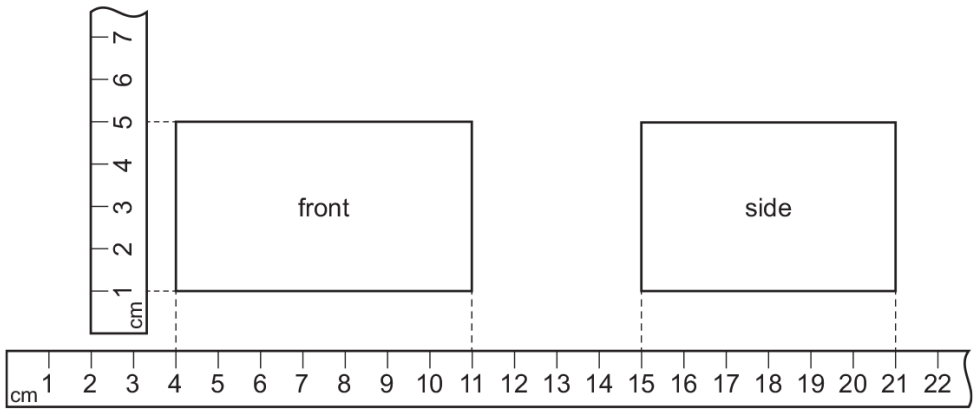


diagram 2

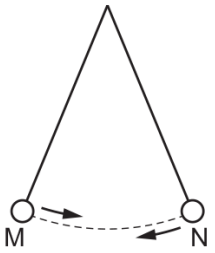
Metre rules have been shown close to the edges of the block.

What is the volume of the block?

A 120 cm^3 **B** 168 cm^3 **C** 264 cm^3 **D** 1155 cm^3

41. 0625_w20_qp_11 Q: 1

The diagram shows a pendulum. The pendulum bob swings repeatedly between points M and N.



A student starts a stop-watch when the bob reaches point M.

He counts each time the bob changes direction and stops the watch on the tenth change in direction.

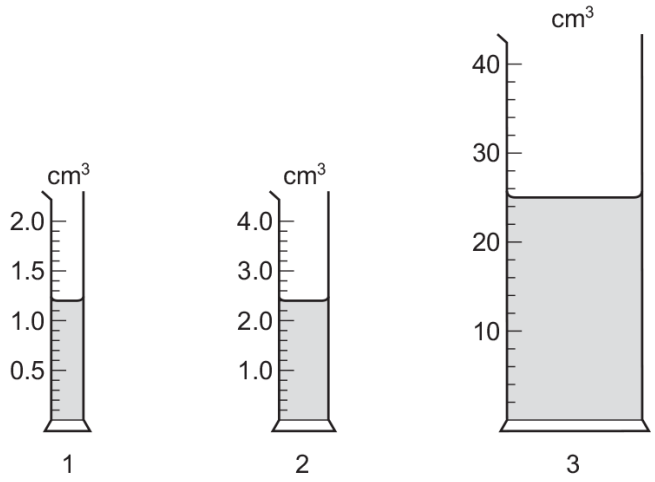
The watch shows a time of 12.0 seconds.

What is the period of the pendulum?

A 0.60 s **B** 1.2 s **C** 2.4 s **D** 12.0 s

42. 0625_w20_qp_12 Q: 1

A student measures the volumes of three liquids using three different measuring cylinders.



The table shows the volumes recorded by the student.

measuring cylinder	volume / cm^3
1	1.2
2	2.2
3	25

Which readings are correctly recorded?

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 1 only

43. 0625_w20_qp_13 Q: 1

A student uses a metre rule to measure the length of a sheet of paper.

Which measurement is shown to the nearest millimetre?

A 0.3 m **B** 0.29 m **C** 0.293 m **D** 0.2932 m

44. 0625_m19_qp_12 Q: 1

Water drips from a tap into a measuring cylinder.

The table shows the volume of water in the cylinder every minute for four minutes.

time / minutes	volume of water / cm^3
0	0
1.0	27
2.0	57
3.0	83
4.0	112

What is the average volume of water collected in the cylinder each minute?

A 22 cm^3 **B** 28 cm^3 **C** 56 cm^3 **D** 57 cm^3

45. 0625_s19_qp_11 Q: 1

A digital stop-clock measures time in minutes and seconds.

The stop-clock reads 00:50 when it is started (i.e. 00 minutes 50 seconds).

It reads 02:10 when it is stopped.

What is the shortest possible time that has elapsed between starting and stopping the stop-clock?

A 1 minute 20 seconds

B 2 minutes 00 seconds

C 2 minutes 10 seconds

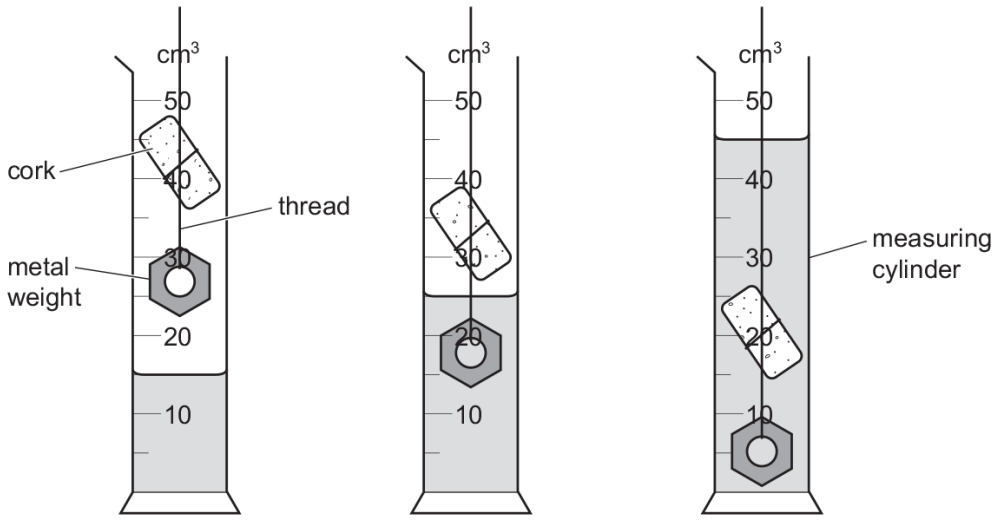
D 3 minutes 00 seconds

46. 0625_s19_qp_12 Q: 1

Diagram 1 shows a measuring cylinder containing water. A metal weight with a cork attached by a thread is held above the water.

Diagram 2 shows the apparatus after the weight has been lowered into the water.

Diagram 3 shows the apparatus after the weight and the cork have been submerged.

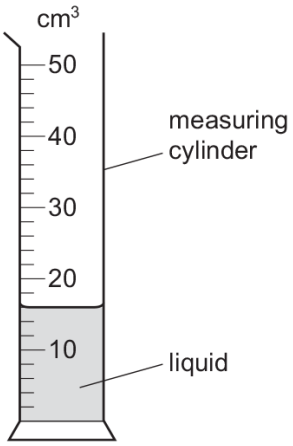


What is the volume of the cork?

A 20 cm^3 **B** 30 cm^3 **C** 45 cm^3 **D** 70 cm^3

47. 0625_s19_qp_13 Q: 1

The diagram shows a measuring cylinder containing liquid.



What is the reading for the volume of liquid in the cylinder?

A 13.0 cm^3 **B** 13.5 cm^3 **C** 16.0 cm^3 **D** 17.0 cm^3

48. 0625_w19_qp_11 Q: 1

A student measures the volume of a small irregularly-shaped stone.

Which apparatus must be used?

A a measuring cylinder containing water and a ruler only

B a measuring cylinder containing water only

C an empty measuring cylinder and a ruler only

D a ruler only

49. 0625_w19_qp_12 Q: 1

A measuring cylinder contains 10 cm^3 of water.

A piece of steel is lowered into the measuring cylinder until it is fully submerged. The volume reading increases to 12 cm^3.

A second piece of steel is lowered into the measuring cylinder so that it is also fully submerged. The volume reading increases to 15 cm^3.

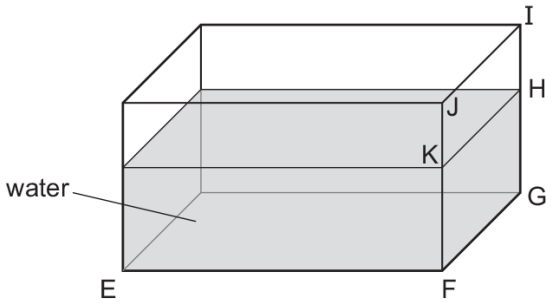
Which row shows the volumes of the two pieces of steel?

	volume of first piece of steel / cm^3	volume of second piece of steel / cm^3
A	2	3
B	2	5
C	12	3
D	12	15

50. 0625_w19_qp_13 Q: 1

A student uses a ruler to find the volume of water in a tank.

She measures the lengths EF and FG.



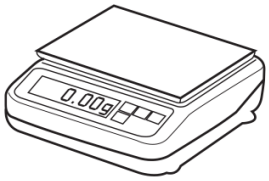
What other length does she need to measure?

A FJ **B** FK **C** HI **D** IJ

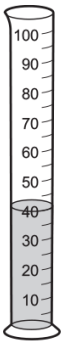
51. 0625_m18_qp_12 Q: 1

A student is asked to find the volume of a small irregularly-shaped piece of rock.

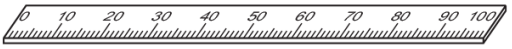
He has the following apparatus available.



balance



measuring cylinder containing water



rule

Which apparatus must the student use to find the volume of the small piece of rock?

A balance and rule

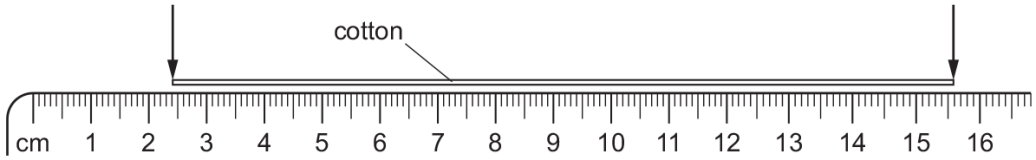
B rule only

C balance and measuring cylinder

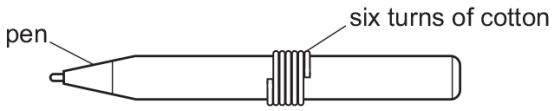
D measuring cylinder only

52. 0625_s18_qp_11 Q: 1

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.

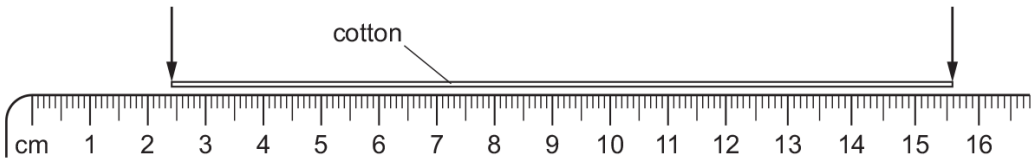


What is the distance once round the pen?

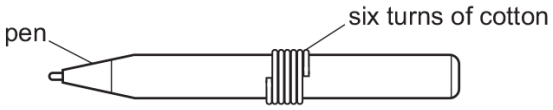
A 2.2 cm **B** 2.6 cm **C** 13.2 cm **D** 15.6 cm

53. 0625_s18_qp_12 Q: 1

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

54. 0625_s18_qp_12 Q: 13

Brownian motion is the random motion of particles due to molecular bombardment.

In which states of matter is Brownian motion observed?

A gases, liquids and solids

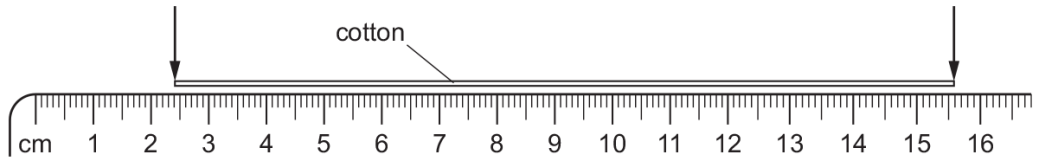
B gases and liquids only

C gases and solids only

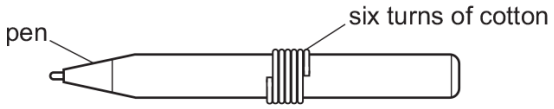
D liquids and solids only

55. 0625_s18_qp_13 Q: 1

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

56. 0625_w18_qp_11 Q: 1

A pendulum is set in motion and timed. The time measured for 20 complete swings is 30 s.

What is the time for one complete swing of the pendulum?

A 0.67 s **B** 0.75 s **C** 1.5 s **D** 3.0 s

57. 0625_w18_qp_12 Q: 1

A pendulum is set in motion and timed. The time measured for 20 complete swings is 30 s.

What is the time for one complete swing of the pendulum?

A 0.67 s **B** 0.75 s **C** 1.5 s **D** 3.0 s

58. 0625_w18_qp_13 Q: 1

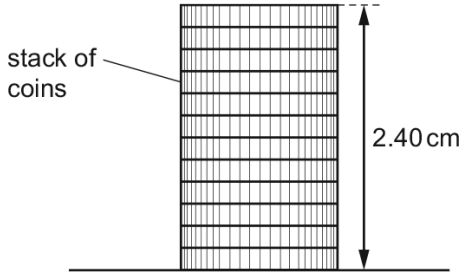
A pendulum is set in motion and timed. The time measured for 20 complete swings is 30 s.

What is the time for one complete swing of the pendulum?

A 0.67 s **B** 0.75 s **C** 1.5 s **D** 3.0 s

59. 0625_m17_qp_12 Q: 1

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

60. 0625_s17_qp_11 Q: 1

A stopwatch is used to time a runner in a race. The diagrams show the stopwatch at the start and at the end of the race.

start

end

How long did the runner take to run the race?

A 70.00 seconds

B 110.00 seconds

C 115.20 seconds

D 155.20 seconds

61. 0625_s17_qp_12 Q: 1

Which device is used to measure the time it takes for a 10 cm^3 block of ice to melt in a laboratory at room temperature?

A measuring cylinder

B ruler

C stopwatch

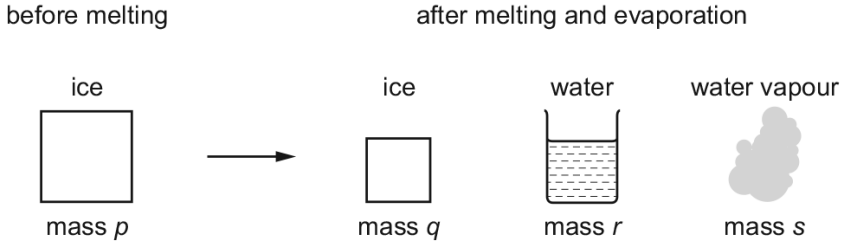
D thermometer

62. 0625_s17_qp_12 Q: 5

A block of ice is removed from a freezer. Some of the ice melts to produce water. Some of the water that is produced evaporates.

The original mass of the ice is *p*. The mass of the ice that has not yet melted is *q*. The mass of the water is *r*. The mass of the water vapour is *s*.

The diagram shows these changes.



Which equation gives the relationship between *p*, *q*, *r* and *s*?

A $p = q + r$

B $p = q + r + s$

C $p = q + r - s$

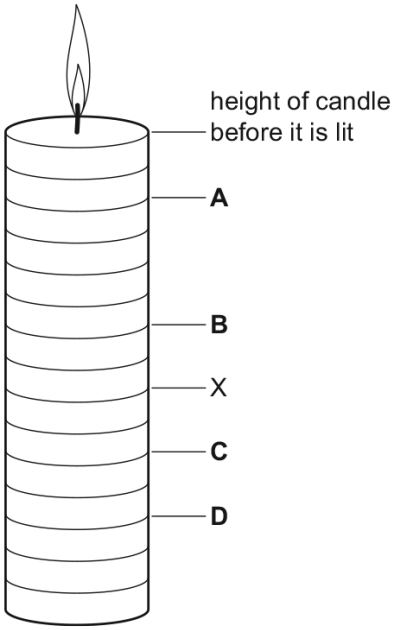
D $p = q + s$

63. 0625_s17_qp_13 Q: 1

A candle burns evenly. It is used as a timer.

The candle is lit and burns down to point X in 2 hours.

To which labelled point does the candle burn down after a further 30 minutes?



64. 0625_s17_qp_13 Q: 2

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

65. 0625_w17_qp_11 Q: 1

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.

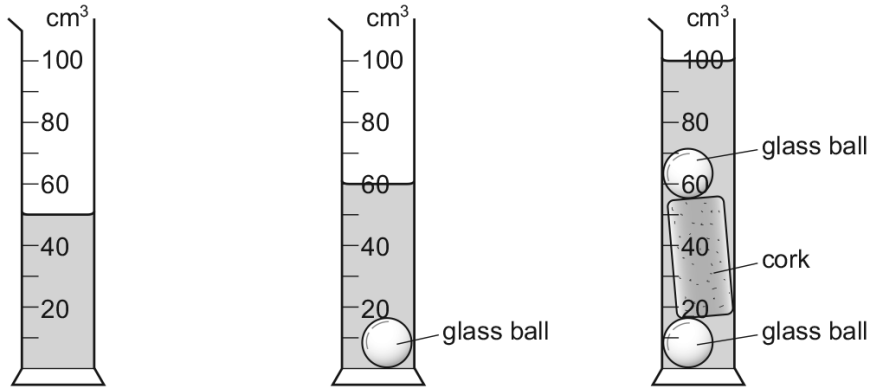


diagram 1 diagram 2 diagram 3

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.

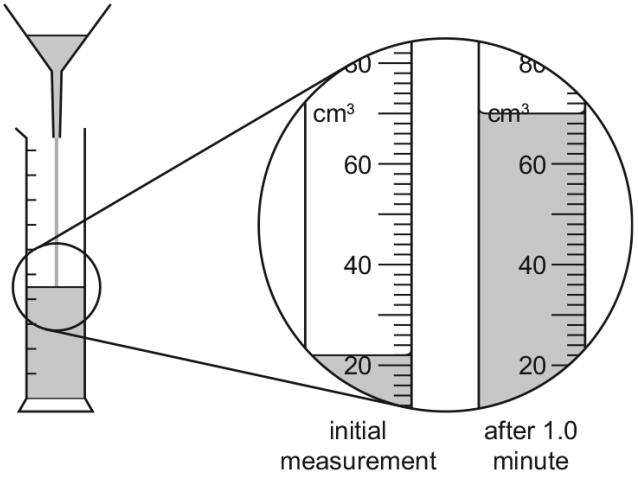
What is the volume of the cork?

A 30 cm^3 **B** 40 cm^3 **C** 50 cm^3 **D** 100 cm^3

66. 0625_w17_qp_12 Q: 1

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?

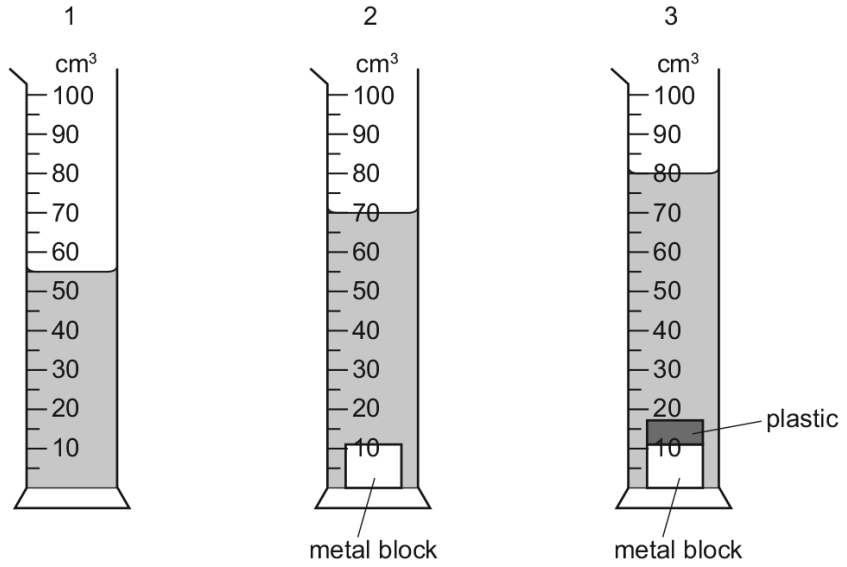
A $0.73\,cm^3/s$ **B** $0.80\,cm^3/s$ **C** $44\,cm^3/s$ **D** $48\,cm^3/s$

67. 0625_w17_qp_13 Q: 1

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 cm^3 **B** 25 cm^3 **C** 70 cm^3 **D** 80 cm^3

1.2 Motion

68. 0625_m25_qp_12 Q: 3

Four students are instructed to find the time it takes for a ball bearing to fall through a vertical height of 1.0 m.

Each student uses a different procedure.

Which student follows the correct procedure?

A The student measures the time taken for the ball to fall 1.0 m five times. He then adds the times taken together and divides by five.

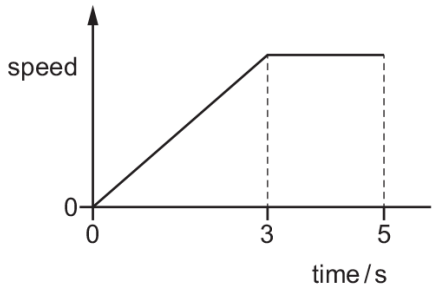
B The student measures the time taken for the ball to fall 1.0 m five times. He then multiplies the times taken together and divides by five.

C The student measures the time taken for the ball to fall 2.0 m. He then divides the time taken by two.

D The student measures the time taken for the ball to fall 2.0 m five times. He then adds the times taken together and divides by ten.

69. 0625_m25_qp_12 Q: 4

The graph shows the motion of a car for a 5-second period.



Which row shows a time when the car is at rest and a time when it is moving at a constant speed?

	the car is at rest at	the car is moving at a constant speed at
A	0.0 s	2.0 s
B	0.0 s	4.0 s
C	4.0 s	0.0 s
D	4.0 s	2.0 s

70. 0625_s25_qp_11 Q: 2

Which statement about the speed and velocity of an object is correct?

A The speed and velocity of an object are always greater than zero.

B The speed of an object is always greater than its velocity.

C The velocity of an object is equal to its speed in a given direction.

D Speed can be measured in m/s but velocity can only be measured in km/h.

71. 0625_s25_qp_11 Q: 3

The table shows a student's times in three races.

race	distance/m	time/s
1	100	12
2	150	17
3	200	25

What is the order of the student's average speeds in each race, from lowest to highest?

A $1 \rightarrow 2 \rightarrow 3$ **B** $1 \rightarrow 3 \rightarrow 2$ **C** $2 \rightarrow 1 \rightarrow 3$ **D** $3 \rightarrow 1 \rightarrow 2$

72. 0625_s25_qp_12 Q: 3

A speed–time graph is plotted for the motion of a car.

Which quantity does the area under the speed–time graph represent?

A acceleration of the car

B average speed of the car

C distance travelled by the car

D final velocity of the car

73. 0625_s25_qp_13 Q: 3

A speed–time graph is plotted for the motion of a car.

Which quantity does the area under the speed–time graph represent?

A acceleration of the car

B average speed of the car

C distance travelled by the car

D final velocity of the car

74. 0625_m24_qp_12 Q: 2

A car moves through a measured distance s in a known time t.

What is the correct equation used to calculate the average speed v of the car?

A $v = \frac{s}{t}$ **B** $v = s \times t$ **C** $v = \frac{t}{s}$ **D** $v = s \times t^2$

75. 0625_s24_qp_13 Q: 2

A car travels along a road at a constant speed.

What correctly describes the speed–time graph of the car?

A a horizontal line

B a vertical line

C a diagonal line upwards

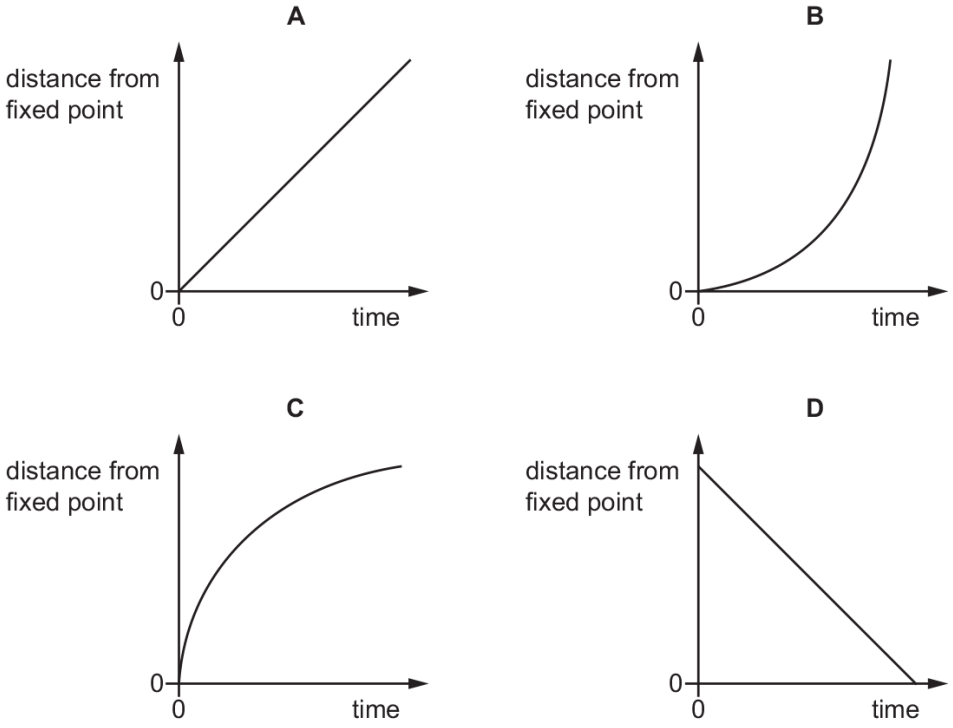
D a curved line with increasing gradient

76. 0625_s24_qp_13 Q: 3

Four objects are moving along a straight line.

The distance of each object from a fixed point on the line is plotted against time.

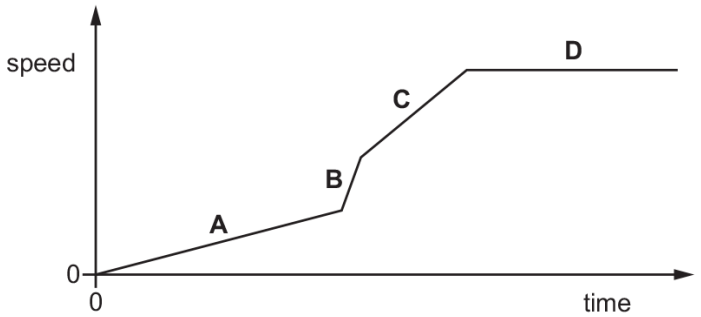
Which object is decelerating?



77. 0625_w24_qp_11 Q: 2

The diagram shows the speed–time graph of an object.

In which section does the object have the largest acceleration?



78. 0625_w24_qp_11 Q: 3

An object begins to fall close to the Earth's surface. Air resistance can be ignored.

Which statement about the object's acceleration is correct?

A The acceleration is constant.

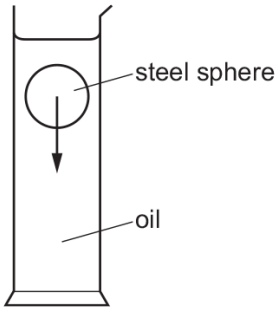
B The acceleration decreases as the body falls.

C The acceleration increases as the body falls.

D The acceleration is zero.

79. 0625_w24_qp_11 Q: 8

The diagram shows a steel sphere falling through a cylinder of oil.

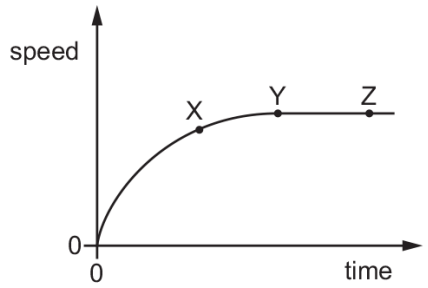


Which row indicates what happens to the steel sphere and what happens to the oil as the steel sphere falls?

	the steel sphere becomes warmer	the oil becomes warmer
A	yes	yes
B	yes	no
C	no	yes
D	no	no

80. 0625_w24_qp_12 Q: 2

The diagram shows how the speed of a falling object changes with time.

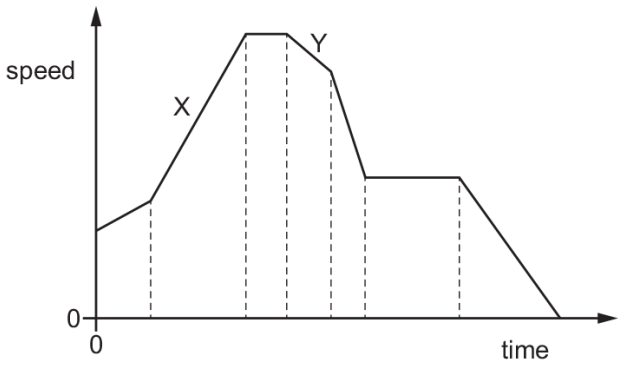


Which row describes the motion of the object between X and Y, and between Y and Z?

	between X and Y	between Y and Z
A	accelerating	at rest
B	accelerating	constant speed
C	decelerating	at rest
D	decelerating	constant speed

81. 0625_w24_qp_12 Q: 3

The speed–time graph represents a journey.



How does the graph show that the distance travelled in section X of the journey is greater than the distance travelled in section Y?

A The area under section X of the graph is greater than the area under section Y.

B The gradient of section X of the graph is greater than the gradient of section Y.

C The speed at the end of section X of the journey is greater than the speed at the end of section Y.

D The time for section X of the journey is greater than the time for section Y.

82. 0625_w24_qp_13 Q: 2

Which statement is correct?

A speed = distance travelled × time taken

B speed = velocity in a given direction

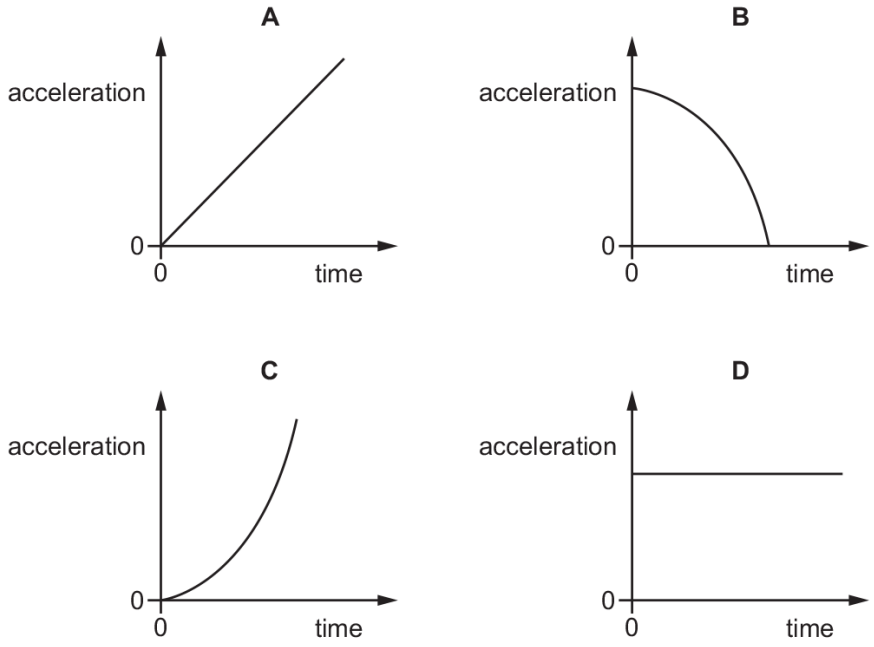
C velocity = $\frac{\text{time taken}}{\text{distance travelled}}$

D velocity = speed in a given direction

83. 0625_w24_qp_13 Q: 3

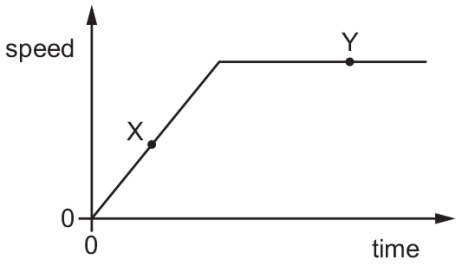
A stone falls freely from the top of a cliff. Air resistance may be ignored.

Which graph shows how the acceleration of the stone varies with time as it falls?



84. 0625_m23_qp_12 Q: 2

The diagram shows the speed–time graph for a car.



Which row describes the motion of the car at point X and at point Y?

	point X	point Y
A	at rest	moving with constant speed
B	moving with constant speed	at rest
C	moving with changing speed	at rest
D	moving with changing speed	moving with constant speed

85. 0625_m23_qp_12 Q: 3

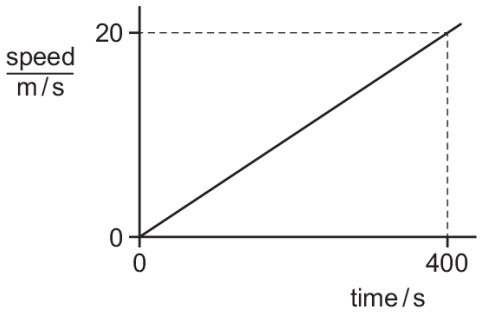
A ball is dropped in a vacuum from a height of 4.0 m above the surface of Mars. The acceleration of the ball at a height of 2.0 m is 3.8 m/s^2.

What is the acceleration of the ball at a height of 1.0 m above the surface of Mars?

A 1.9 m/s^2 **B** 3.8 m/s^2 **C** 5.7 m/s^2 **D** 7.6 m/s^2

86. 0625_s23_qp_11 Q: 2

The graph represents the motion of a vehicle.

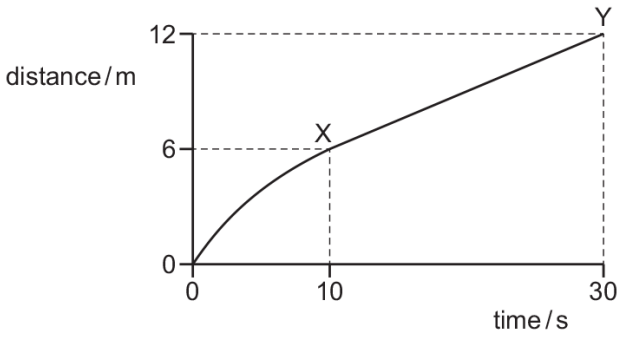


What is the distance travelled by the vehicle in 400 s?

A 20 m **B** 400 m **C** 4000 m **D** 8000 m

87. 0625_s23_qp_11 Q: 3

The diagram shows a distance–time graph for an object moving in a straight line.

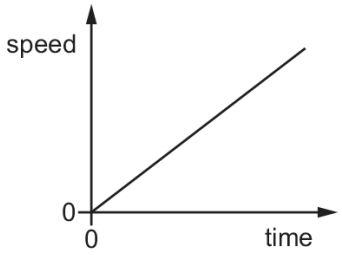


What is the average speed between X and Y?

A 0.20 m/s **B** 0.30 m/s **C** 0.40 m/s **D** 0.60 m/s

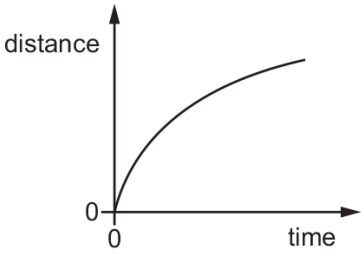
88. 0625_s23_qp_12 Q: 2

The speed–time graph represents a short journey.

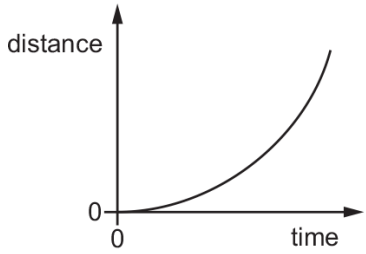


Which distance–time graph represents the same journey?

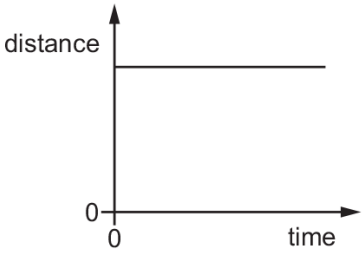
A



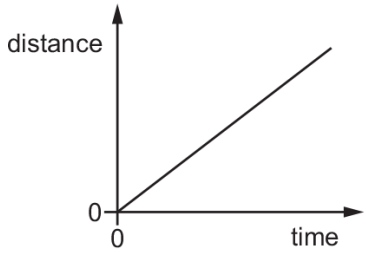
B



C

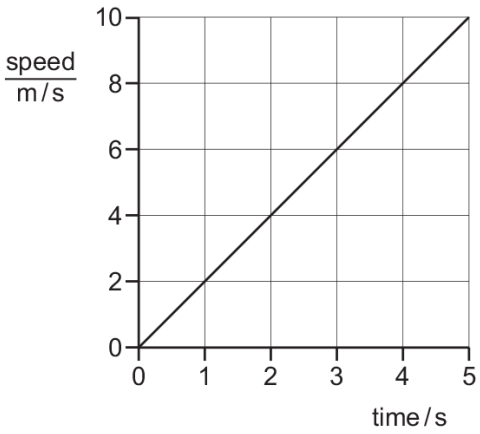


D



89. 0625_s23_qp_12 Q: 3

The graph represents the motion of a car.

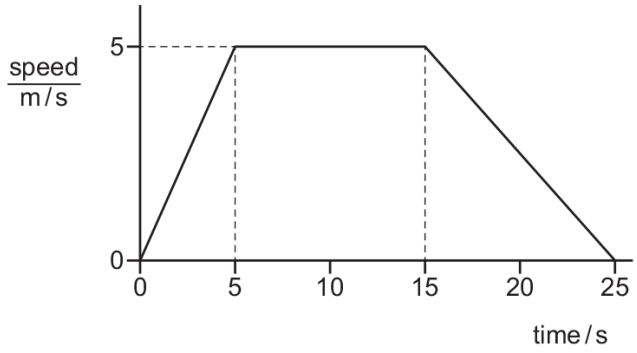


How far has the car moved between 0 and 5 s?

A 2 m **B** 10 m **C** 25 m **D** 50 m

90. 0625_s23_qp_13 Q: 2

The speed–time graph shows the motion of an object.



How far does the object travel at constant speed?

A 25 m **B** 50 m **C** 75 m **D** 125 m

91. 0625_s23_qp_13 Q: 3

A rock falls off a cliff onto a beach. The effect of air resistance on the rock is negligible.

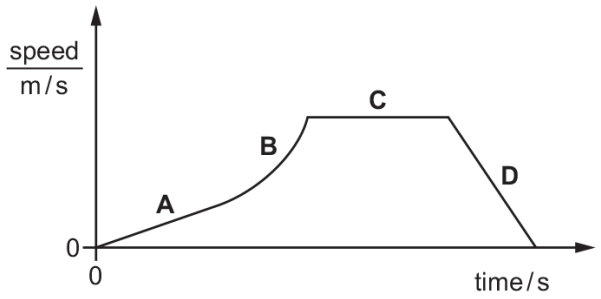
Which row describes the acceleration and speed of the rock as it falls?

	acceleration	speed
A	constant	constant
B	constant	increasing
C	increasing	constant
D	increasing	increasing

92. 0625_w23_qp_11 Q: 2

The graph shows the speed of a car travelling through a town.

Which section of the graph represents a period when the car is decelerating?



93. 0625_w23_qp_12 Q: 2

A student measures the average speed of a cyclist in a race.

Which quantities must she measure?

A the total time taken to complete the race and the time taken for the cyclist to reach her highest speed

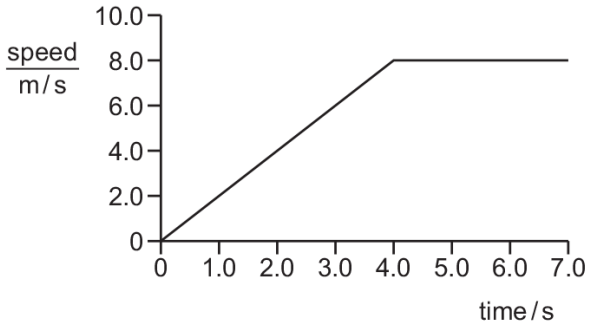
B the total time taken to complete the race and the total distance travelled by the cyclist at her highest speed

C the total time taken to complete the race and the total distance travelled by the cyclist

D the time taken to reach her highest speed and the total distance travelled by the cyclist

94. 0625_w23_qp_12 Q: 3

The graph shows the motion of a sprinter.



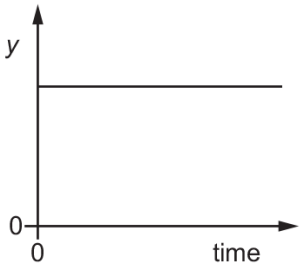
She accelerates steadily from rest to 8.0 m/s in 4.0 s.

How far does she travel in the last three seconds of her acceleration?

A 9.0 m **B** 15 m **C** 16 m **D** 24 m

95. 0625_w23_qp_13 Q: 2

A train is on a straight track. The graph shows how a quantity *y* varies with time.



Which statements can be true?

1 The train is stationary and *y* represents the distance from the last station.

2 The train is moving and *y* represents the distance from the last station.

3 The train is stationary and *y* represents the speed of the train.

4 The train is moving and *y* represents the speed of the train.

A 1 and 2 **B** 1 and 4 **C** 2 and 3 **D** 3 and 4

96. 0625_w23_qp_13 Q: 3

A vehicle sent to explore the surface of Mars has a mass of 200 kg.

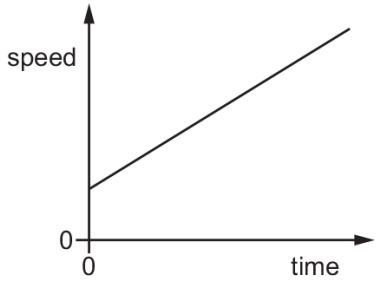
The acceleration of free fall on Mars is 3.7 m/s^2.

What is the weight of the vehicle on Mars?

A 20 N **B** 54 N **C** 740 N **D** 2000 N

97. 0625_m22_qp_12 Q: 2

The diagram shows a speed–time graph for a moving object.



Which statement describes the motion of the object?

A The speed of the object is increasing with constant acceleration.

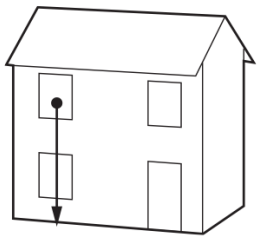
B The speed of the object is increasing with an acceleration that is not constant.

C The speed of the object is decreasing with constant deceleration.

D The speed of the object is decreasing with a deceleration that is not constant.

98. 0625_m22_qp_12 Q: 3

A tennis ball falls from the upstairs window of a house.



What can be said about the acceleration of the ball if air resistance is ignored?

A It depends on the density of the ball.

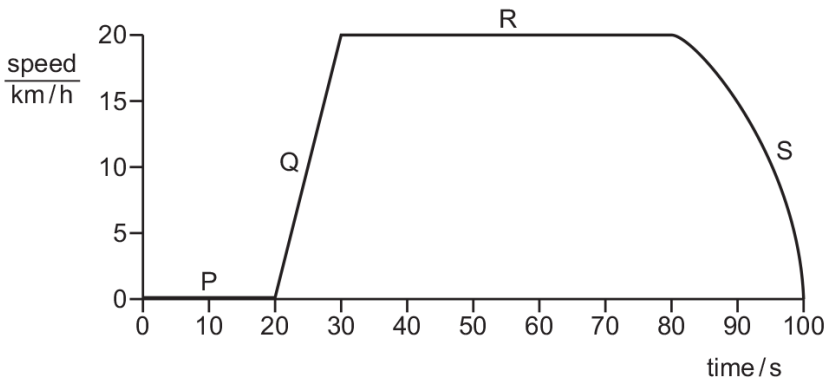
B It depends on the mass of the ball.

C It increases as the ball falls.

D It stays the same as the ball falls.

99. 0625_s22_qp_11 Q: 2

The speed–time graph for a train is shown.



Which regions of the graph show the train moving?

A P, Q, R and S

B Q, R and S only

C Q and S only

D R only

Appendix A

Answers

SN	Paper	Q. No.	Answer
1	0625_m25_qp_12	1	D
2	0625_m25_qp_12	2	B
3	0625_s25_qp_11	1	C
4	0625_s25_qp_12	1	C
5	0625_s25_qp_12	2	B
6	0625_s25_qp_13	1	C
7	0625_s25_qp_13	2	B
8	0625_m24_qp_12	1	B
9	0625_s24_qp_11	1	A
10	0625_s24_qp_12	1	D
11	0625_s24_qp_12	2	C
12	0625_s24_qp_12	3	D
13	0625_s24_qp_13	1	B
14	0625_w24_qp_11	1	A
15	0625_w24_qp_12	1	C
16	0625_w24_qp_13	1	B
17	0625_m23_qp_12	1	C
18	0625_s23_qp_12	1	D
19	0625_s23_qp_13	1	C
20	0625_w23_qp_11	1	B
21	0625_w23_qp_12	1	B
22	0625_w23_qp_13	1	A
23	0625_m22_qp_12	1	B
24	0625_s22_qp_11	1	B
25	0625_s22_qp_12	1	B
26	0625_s22_qp_13	1	B
27	0625_w22_qp_11	1	A
28	0625_w22_qp_12	1	A
29	0625_w22_qp_13	1	A
30	0625_m21_qp_12	1	B
31	0625_s21_qp_11	1	C
32	0625_s21_qp_12	1	A
33	0625_s21_qp_13	1	C
34	0625_w21_qp_11	1	B
35	0625_w21_qp_12	1	B
36	0625_w21_qp_13	1	C
37	0625_m20_qp_12	1	A
38	0625_s20_qp_11	1	B
39	0625_s20_qp_12	1	A
40	0625_s20_qp_13	1	B
41	0625_w20_qp_11	1	C
42	0625_w20_qp_12	1	C
43	0625_w20_qp_13	1	C
44	0625_m19_qp_12	1	B
45	0625_s19_qp_11	1	A
46	0625_s19_qp_12	1	A
47	0625_s19_qp_13	1	C
48	0625_w19_qp_11	1	B
49	0625_w19_qp_12	1	A
50	0625_w19_qp_13	1	B
51	0625_m18_qp_12	1	D
52	0625_s18_qp_11	1	A
53	0625_s18_qp_12	1	A
54	0625_s18_qp_12	13	B
55	0625_s18_qp_13	1	A
56	0625_w18_qp_11	1	C
57	0625_w18_qp_12	1	C
58	0625_w18_qp_13	1	C
59	0625_m17_qp_12	1	B
60	0625_s17_qp_11	1	A
61	0625_s17_qp_12	1	C
62	0625_s17_qp_12	5	B
63	0625_s17_qp_13	1	C
64	0625_s17_qp_13	2	C
65	0625_w17_qp_11	1	A
66	0625_w17_qp_12	1	B
67	0625_w17_qp_13	1	A
68	0625_m25_qp_12	3	A
69	0625_m25_qp_12	4	B
70	0625_s25_qp_11	2	C
71	0625_s25_qp_11	3	D
72	0625_s25_qp_12	3	C
73	0625_s25_qp_13	3	C
74	0625_m24_qp_12	2	A
75	0625_s24_qp_13	2	A
76	0625_s24_qp_13	3	C
77	0625_w24_qp_11	2	B
78	0625_w24_qp_11	3	A
79	0625_w24_qp_11	8	A
80	0625_w24_qp_12	2	B
81	0625_w24_qp_12	3	A
82	0625_w24_qp_13	2	D
83	0625_w24_qp_13	3	D
84	0625_m23_qp_12	2	D
85	0625_m23_qp_12	3	B
86	0625_s23_qp_11	2	C
87	0625_s23_qp_11	3	B
88	0625_s23_qp_12	2	B
89	0625_s23_qp_12	3	C
90	0625_s23_qp_13	2	B
91	0625_s23_qp_13	3	B
92	0625_w23_qp_11	2	D
93	0625_w23_qp_12	2	C
94	0625_w23_qp_12	3	B
95	0625_w23_qp_13	2	B
96	0625_w23_qp_13	3	C
97	0625_m22_qp_12	2	A
98	0625_m22_qp_12	3	D