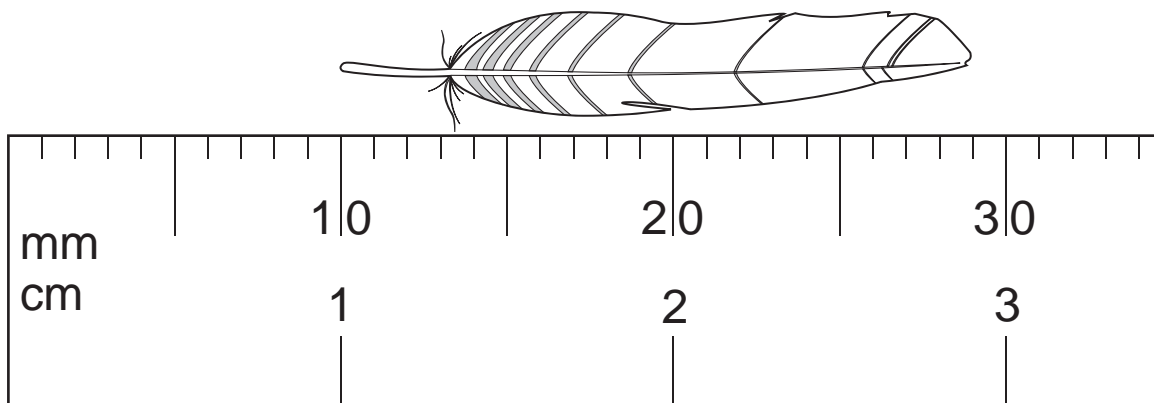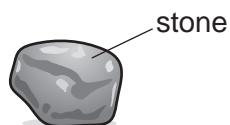1   The diagram shows an enlarged drawing of the end of a metre rule. It is being used to measure the length of a small feather.

What is the length of the feather?

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

2   A student wishes to find the volume of a small, irregularly-shaped stone.
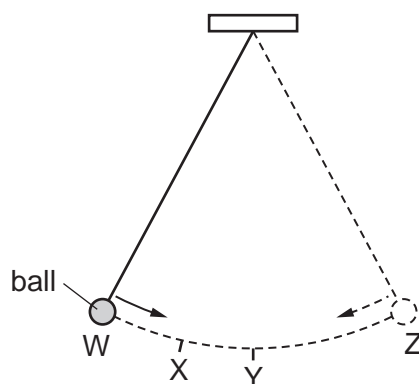
A ruler and a measuring cylinder containing some water are available.

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

3   The diagram shows a ball hanging on a string. The ball swings from point W to point Z and back to point W.

Which statement about the ball is correct?

A   The kinetic energy of the ball is greatest at point W.

B   The kinetic energy of the ball is greatest at point X.

C   The kinetic energy of the ball is greatest at point Y.

D   The kinetic energy of the ball is the same at all points of the swing.

4   A measuring cylinder is used to measure the volume of a quantity of water.

Which measuring technique would **not** improve the accuracy of the measurement?

A   making sure that the measuring cylinder is vertical

B   making sure that the water surface is at eye level

C   reading the top of the water meniscus

D   using the smallest measuring cylinder available that will contain all the water

5   The diagram shows four identical spheres placed between two wooden blocks on a ruler.
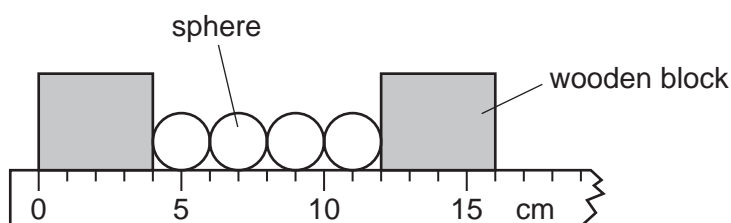

What is the diameter of one sphere?

A   1.0 cm   **B**   2.0 cm   **C**   3.0 cm   **D**   4.0 cm

6 A cook wants to prepare some food to be cooked by 1.15 p.m. He uses an oven with an automatic timer that can be set to switch on and off at certain times. The oven needs to be switched on for 2 hours 10 minutes.

At which time does the oven need to switch on?

A 11.05 a.m. **B** 11.25 a.m. **C** 3.05 p.m. **D** 3.25 p.m.

7 The diagram shows a measuring instrument.
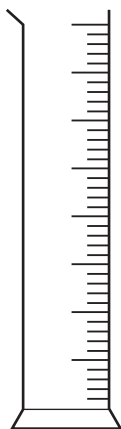
Which quantity is this instrument used to measure?

A area

B density

C mass

D volume

8 Which option contains **only** apparatus that could be used to determine the volume of a small block of unknown material?

A measuring cylinder, metre rule

B measuring cylinder, stopwatch

C metre rule, balance

D metre rule, stopwatch

9 The diagram shows a measuring cylinder used to measure the volume of a small stone.
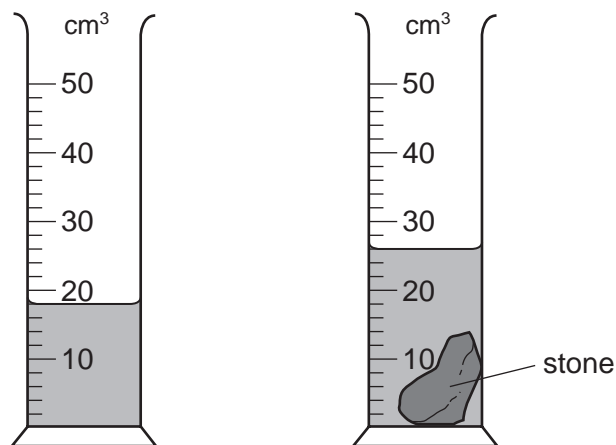
What is the volume of the stone?

A 8 cm³   **B** 9 cm³   **C** 14 cm³   **D** 26 cm³

10 A student uses a measuring cylinder to measure the volume of a quantity of water.

Which action would make her result **less** accurate?

A making sure her eye is level with the water surface

B making sure the cylinder is vertical

C reading the bottom of the meniscus

**D** using the largest measuring cylinder possible

11 A student uses a measuring cylinder to measure the volume of some water. The diagram shows part of the measuring cylinder. The top and bottom of the meniscus are labelled.
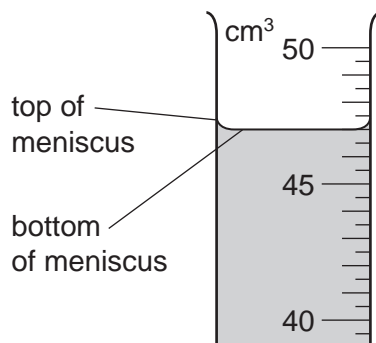
What is the volume of the water?

A 47.0 cm³   **B** 47.5 cm³   **C** 49.0 cm³   **D** 49.5 cm³

12   A student wishes to measure accurately the volume of approximately 40 cm^3 of water. She has two measuring cylinders, a larger one that can hold 100 cm^3, and a smaller one that can hold 50 cm^3. The water forms a meniscus where it touches the glass.
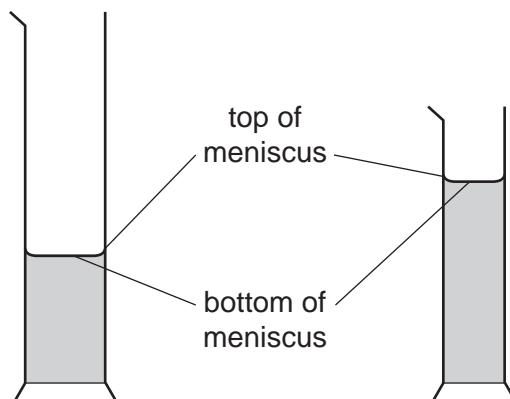
Which cylinder should the student use and which water level should she use to ensure an accurate result?

	cylinder	water level
A	larger one	bottom of meniscus
B	larger one	top of meniscus
C	smaller one	bottom of meniscus
D	smaller one	top of meniscus

13   The diagram shows part of a ruler. The ruler is used to find the length of a nail.
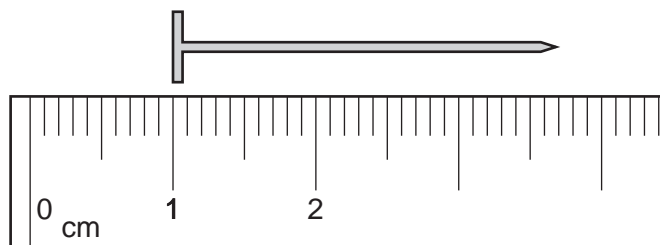
What is the length of the nail?

A   2.2 cm   **B**   2.7 cm   **C**   3.2 cm   **D**   3.7 cm

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

    A a balance

    B a barometer

    C a manometer

    D a measuring cylinder

15 Diagram 1 shows a measuring cylinder containing water.

Five identical steel balls are now lowered into the measuring cylinder. Diagram 2 shows the new water level in the cylinder.
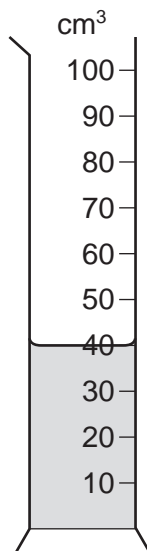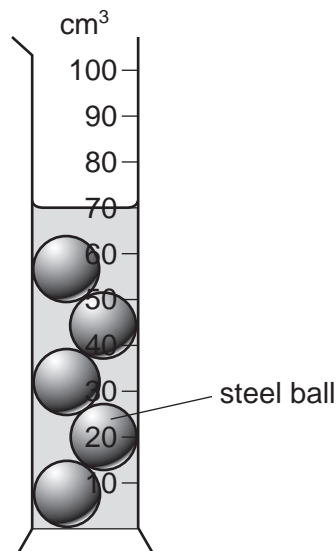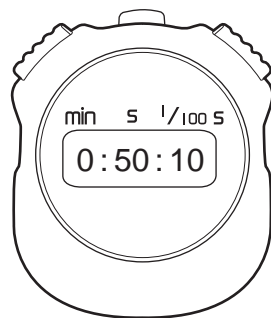

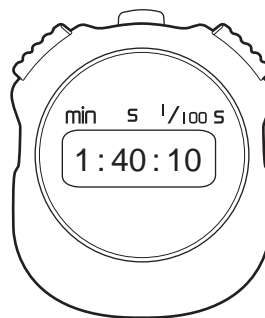diagram 1   diagram 2

What is the volume of each steel ball?

A $6\,cm^3$ **B** $14\,cm^3$ **C** $30\,cm^3$ **D** $70\,cm^3$

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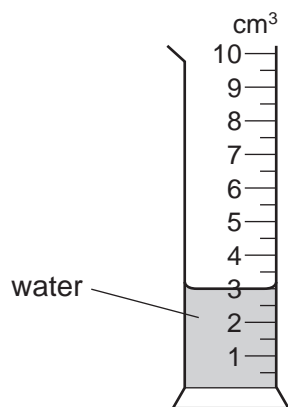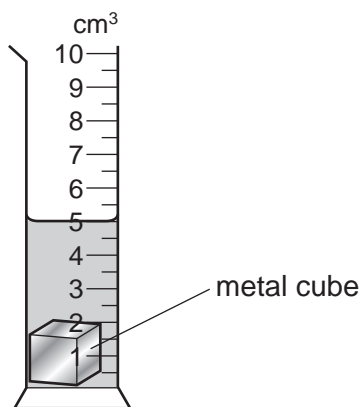

start of lap   end of lap

How long did the runner take to finish the lap of the race?

A   50.00 seconds

B   50.10 seconds

C   90.00 seconds

D   100.10 seconds

17 The diagrams show the readings on a measuring cylinder before and after a small metal cube is added.
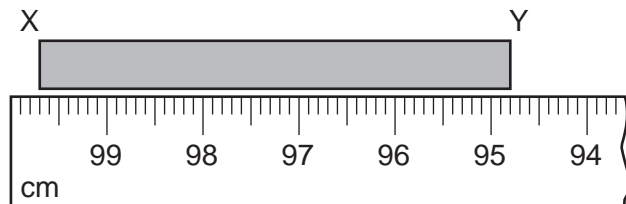

before   after

How many more identical cubes can be added to the cylinder, without causing the water to overflow? Do not include the cube already in the cylinder.

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

18   A student measures the length of a rod XY by holding it next to a metre rule.

The student writes down the length as 94.8 cm.

Which statement is correct?

A   The value is correct.

B   The value is incorrect because it should be 95.2 cm.

C   The value is incorrect because it should be in millimetres.

D   The value is incorrect because the student should subtract the reading for end Y from the reading for end X.

19   A student uses a ruler to measure the length and the width of a small rectangular metal plate.
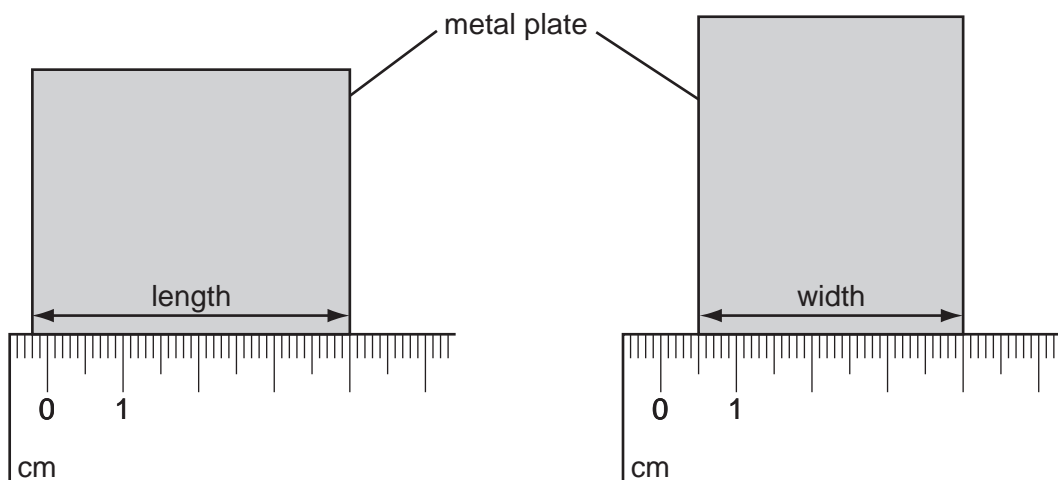
What is the area of the plate?

A $14.0 \, cm^2$ **B** $14.7 \, cm^2$ **C** $16.0 \, cm^2$ **D** $16.8 \, cm^2$

20　A cyclist rides round a track three times.
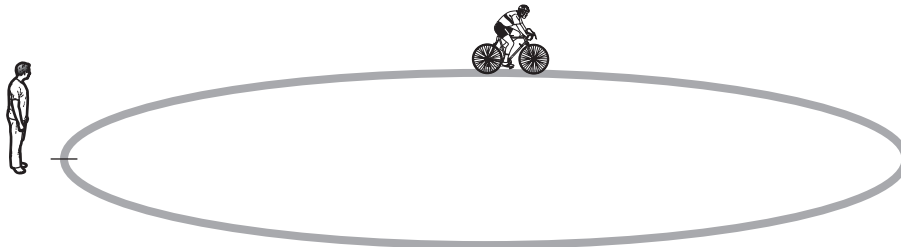
Her friend uses a stopwatch to record the time at the start of the ride, after one circuit, and at the end of the three circuits. The readings from the stopwatch are shown.

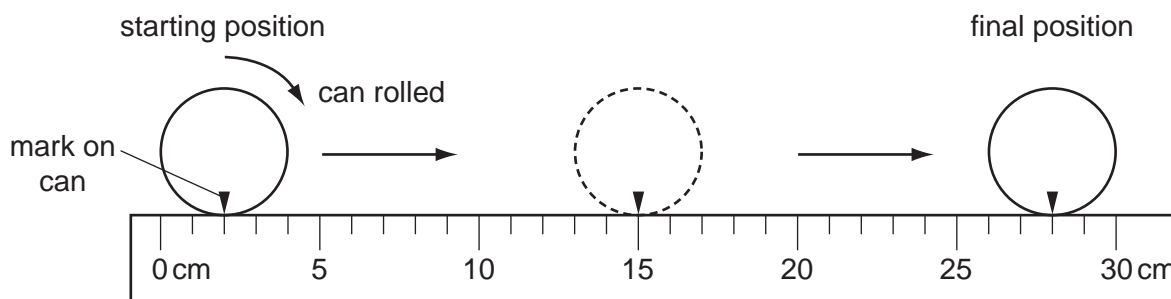| 6.00 s	180.00 s	600.00 s
at the start	after one circuit	at the end of three circuits

What is the average time for one circuit of the track?

A　174 s　　　　**B**　180 s　　　　**C**　198 s　　　　**D**　200 s

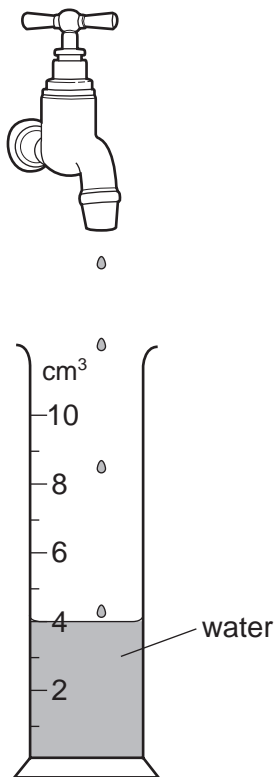21　A cylindrical can is rolled along the ruler shown in the diagram.

The can rolls over twice.

What is the circumference (distance all round) of the can?
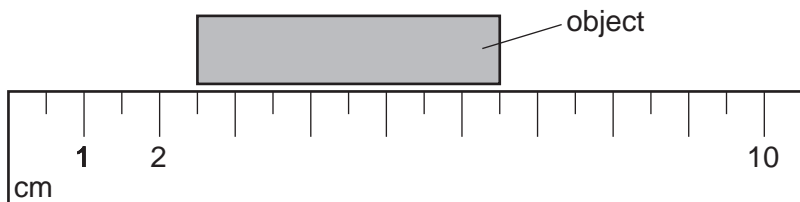
A　13 cm　　　　**B**　14 cm　　　　**C**　26 cm　　　　**D**　28 cm

22 Drops of water are dripping steadily from a tap (faucet). The diagram shows a measuring cylinder which has collected 120 drops of water.

How many drops in total will have been collected when the measuring cylinder reads $10\,cm^3$?

A 48 **B** 60 **C** 180 **D** 300

23 A ruler is used to measure the length of an object.

What is the length of the object?

A 3.0 cm **B** 4.0 cm **C** 5.0 cm **D** 6.5 cm

24 The diameter of a copper wire is thought to be approximately 0.3mm.

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

25 Which measurement can be made using a micrometer screw gauge?

A the air pressure of a tyre

B the diameter of a wire

C the turning effect of a spanner

D the wavelength of microwaves