Name: _____

GCSE Unit 7 Practice Assessment

Date:

Time: 55 minutes

Total marks available: 51

Total marks achieved: _____

Questions

Q1.

The diagram shows a flower bed in the shape of a circle.

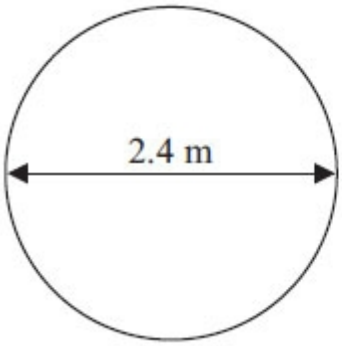

Diagram **NOT** accurately drawn

The flower bed has a diameter of 2.4 m.

Sue is going to put a plastic strip around the edge of the flower bed.
The plastic strip is sold in 2 metre rolls.

How many rolls of plastic strip does Sue need to buy?
You must show all your working.

(Total for Question is 4 marks)

Q2.

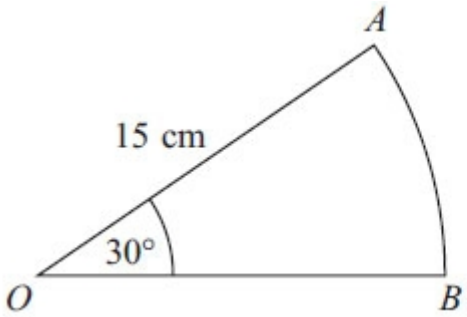

Diagram **NOT** accurately drawn

OAB is a sector of a circle, centre *O*.
The radius of the circle is 15 cm.
The angle of the sector is 30°.

Calculate the area of sector *OAB*.
Give your answer correct to 3 significant figures.

. . . . . cm^2

(Total for Question is 2 marks)

Q3.

Here is a right-angled triangle.

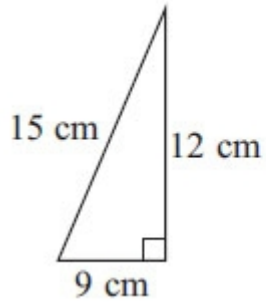

Diagram **NOT** accurately drawn

The shape below is made from 4 of these triangles.

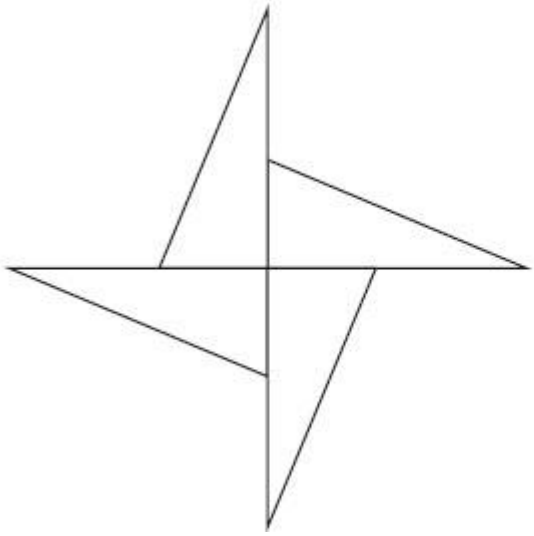

Diagram **NOT** accurately drawn

Work out the perimeter of the shape.

.....

(Total for Question is 3 marks)

Q4.

Here is a cuboid.

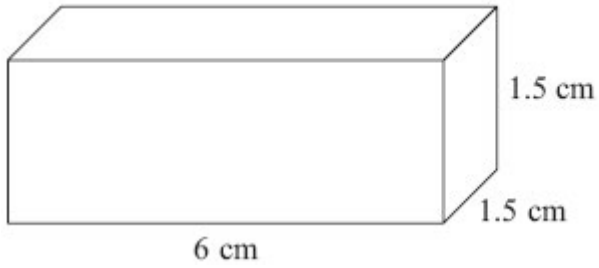

Diagram **NOT** accurately drawn

The cuboid is 6 cm by 1.5 cm by 1.5 cm.

Work out the total surface area of the cuboid.

. . . . . cm^2

(Total for Question is 3 marks)

Q5.

The diagram shows the plan of a playground.

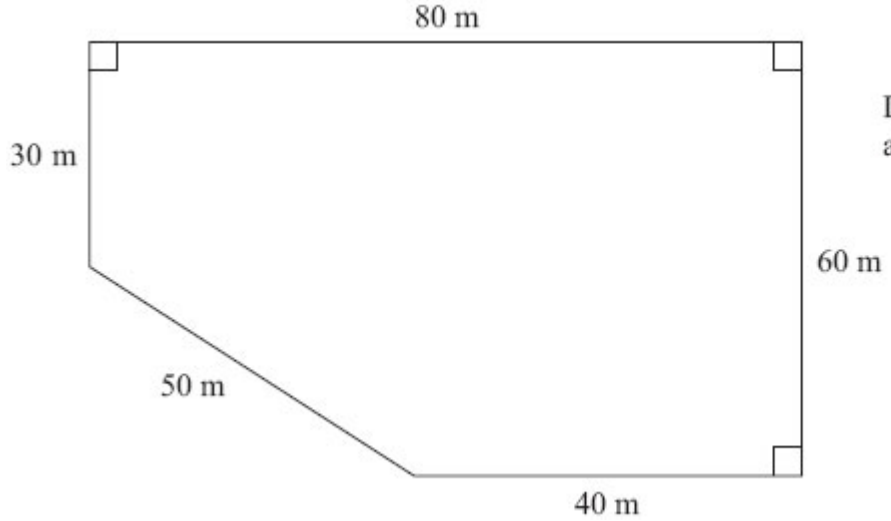

Diagram **NOT** accurately drawn

Bill is going to cover the playground with tarmac.
It costs £2.56 to cover each square metre with tarmac.

Work out the total cost of the tarmac Bill needs.

.....

(Total for Question is 4 marks)

Q6.

The diagram shows a triangular prism.

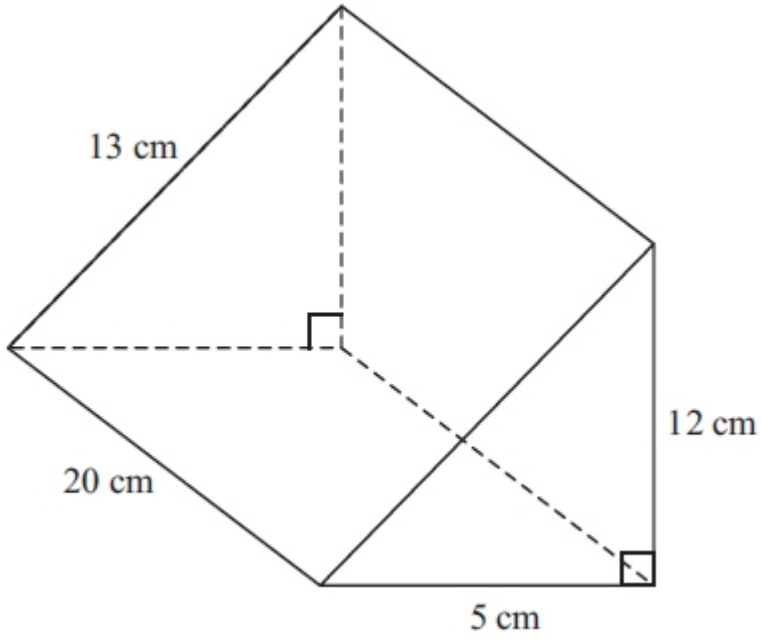

Diagram **NOT** accurately drawn

Work out the total surface area of the prism.

. . . . . cm^2

(Total for Question is 3 marks)

Q7.

Janice cuts a triangle from a rectangular piece of metal.
She uses the rest of the metal to make a name badge.

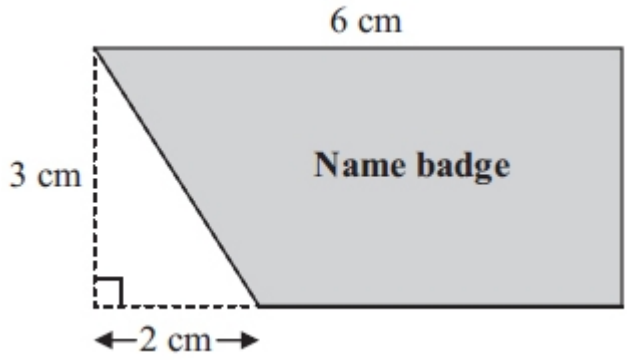

Diagram **NOT** accurately drawn

The rectangle has length 6 cm and width 3 cm.
The right-angled triangle has base 2 cm and height 3 cm.

Work out the area of the name badge.

.....

(Total for Question is 4 marks)

Q8.

The diagram shows a solid made from a hemisphere and a cone.

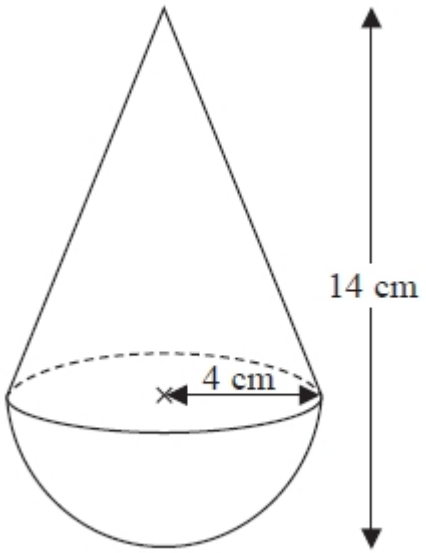

Diagram **NOT** accurately drawn

The radius of the hemisphere is 4 cm.
The radius of the base of the cone is 4 cm.

Calculate the volume of the solid.
Give your answer correct to 3 significant figures.

.....cm^3

(Total for Question is 3 marks)

Q9.

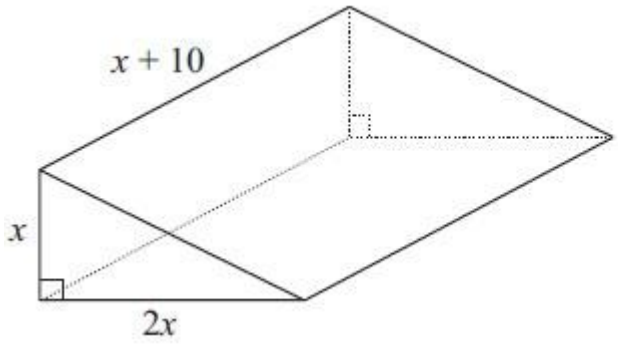

Diagram **NOT** accurately drawn

The diagram shows a solid triangular prism.
All the measurements are in centimetres.

The volume of the prism is V cm^3.

Find a formula for V in terms of x.
Give your answer in simplified form.

.....

(Total for Question is 3 marks)

Q10.

A piece of wood has a length of 65 centimetres to the nearest centimetre.

(a) What is the least possible length of the piece of wood?

.....

(1)

(b) What is the greatest possible length of the piece of wood?

.....

(1)

(Total for Question is 2 marks)

Q11.

Ali has some packets.

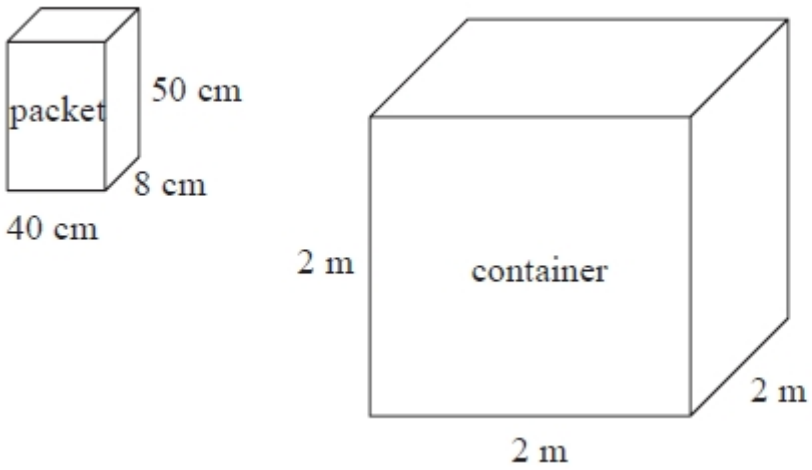

Diagram **NOT** accurately drawn

Each packet has dimensions 40 cm by 8 cm by 50 cm.

Ali fills a container with these packets.
The container is a cube of side 2 m.

Ali fills the container completely with these packets.

Work out the number of packets.

.....

(Total for Question is 4 marks)

Q12.

A solid sphere has

a mass of 1180 g measured to the nearest gram
and a radius of 6.2 cm measured to the nearest millimetre.

Given that

$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

find the upper bound for the density of the sphere.
Give your answer to 3 significant figures.

. . . . . g/cm^3

(Total for Question is 4 marks)

Q13.

The volume of a sphere is 70 cm^3 correct to the nearest cm^3.

Calculate the upper bound for the surface area of the sphere.
Give your answer correct to 1 decimal place.
You must show all your working.

.....cm^2

(Total for question = 4 marks)

Q14.

Chelsea's height is 168 cm to the nearest cm.

(a) What is Chelsea's minimum possible height?

..... cm

(1)

(b) What is Chelsea's maximum possible height?

..... cm

(1)

(Total for Question is 2 marks)

Q15.

Modelling the planet Mercury as a sphere, it has a radius of 2440 km.

(a) (i) Work out an estimate in square kilometres for the surface area of Mercury.

(ii) Without carrying out a further calculation, give evidence to show whether your method gives you an underestimate or an overestimate for the surface area of Mercury.

(3)

In July 2013, the spacecraft Messenger was near Mercury at a distance of 9.75×10^7 km from Earth.

Taking the speed of light to be 3×10^8 m/s,

(b) work out how long it takes light to travel a distance of 9.75×10^7 km.

(3)

(Total for question = 6 marks)