PROBLEM SOLVING - GCSE EDEXCEL (Higher)
Past Papers Questions
(Non Calculator)

1   The diagram shows a patio in the shape of a rectangle.
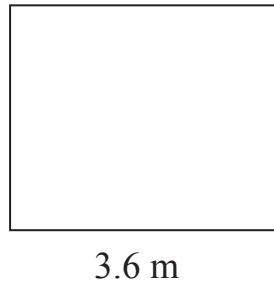
3 m

Diagram **NOT**
accurately drawn

3.6 m

The patio is 3.6 m long and 3 m wide.

Matthew is going to cover the patio with paving slabs.
Each paving slab is a square of side 60 cm.

Matthew buys 32 of the paving slabs.

(a)   Does Matthew buy enough paving slabs to cover the patio?
You must show all your working.

....
(3)

The paving slabs cost £8.63 each.

(b)   Work out the total cost of the 32 paving slabs.

£......................................
(3)

(Total for Question 2 is 6 marks)

2   Here are the ingredients needed to make 12 shortcakes.

> **Shortcakes**
>
> Makes 12 shortcakes
>
> 50 g of sugar
> 200 g of butter
> 200 g of flour
> 10 ml of milk

Liz makes some shortcakes.

She uses 25 ml of milk.

(a)   How many shortcakes does Liz make?

....

(2)

Robert has   500 g of sugar
             1000 g of butter
             1000 g of flour
             500 ml of milk

(b)   Work out the greatest number of shortcakes Robert can make.

....

(2)

(Total for Question 6 is 4 marks)

3   Buses to Acton leave a bus station every 24 minutes.
     Buses to Barton leave the same bus station every 20 minutes.

     A bus to Acton and a bus to Barton both leave the bus station at 9 00 am.

     When will a bus to Acton and a bus to Barton next leave the bus station at the same time?

     ....

     (Total for Question 7 is 3 marks)

4   Margaret has some goats.
     The goats produce an average total of 21.7 litres of milk per day for 280 days.
     Margaret sells the milk in $\dfrac{1}{2}$ litre bottles.

     Work out an estimate for the total number of bottles that Margaret will be able to fill with the milk.

     You must show clearly how you got your estimate.

     ....

     (Total for Question 8 is 3 marks)

5   Matt and Dan cycle around a cycle track.

Each lap Matt cycles takes him 50 seconds.
Each lap Dan cycles takes him 80 seconds.

Dan and Matt start cycling at the same time at the start line.

Work out how many laps they will each have cycled when they are next at the start line together.

Matt.. laps

Dan.. laps

(Total for Question 9 is 3 marks)

6   50 people each did one activity at a sports centre.

Some of the people went swimming.
Some of the people played squash.
The rest of the people used the gym.

21 of the people were female.
6 of the 8 people who played squash were male.
18 of the people used the gym.
9 males went swimming.

Work out the number of females who used the gym.

(Total for Question 3 is 4 marks)

7   John buys some boxes of pencils and some packets of pens for people to use at a conference.

There are 40 pencils in a box.
There are 15 pens in a packet.

John gives one pencil and one pen to each person at the conference.
He has no pencils left.
He has no pens left.

How many boxes of pencils and how many packets of pens did John buy?

.... boxes of pencils

.... packets of pens

(Total for Question 9 is 3 marks)

8   The diagram shows the plan of a floor.

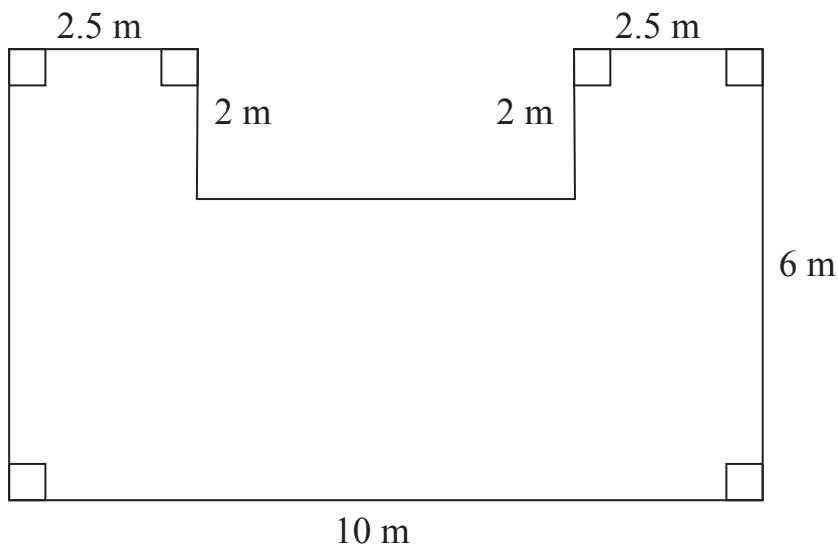2.5 m   2.5 m

2 m   2 m

Diagram **NOT**
accurately drawn

6 m

10 m

Angie is going to varnish the floor.

She needs 1 litre of varnish for 5 m2 of floor.
There are 2.5 litres of varnish in each tin of varnish.

Angie has 3 tins of varnish.

Does she have enough varnish for all the floor?
You must show all your working.

(Total for Question 7 is 5 marks)

9   66 people went on a day trip.
     Each person did only one activity on the trip.

     Each person went skating or went to an art gallery or went bowling.

     43 of the people are female.
     4 of the 10 people who went skating are male.
     20 of the people went to the art gallery.
     10 males went bowling.

     Work out the number of females who went to the art gallery.

....

(Total for Question 11 is 4 marks)

10   Sanders has a water tank for storing rainwater.
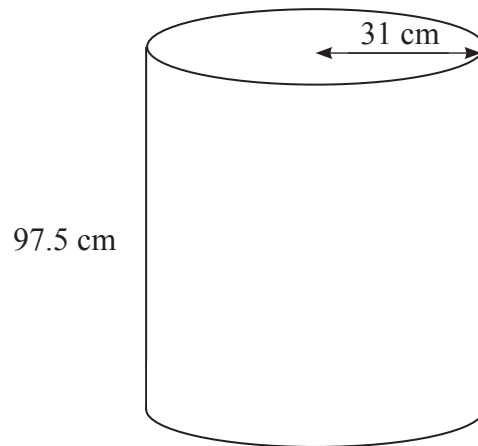
31 cm

Diagram **NOT**
accurately drawn

97.5 cm

The tank is in the shape of a cylinder.
The radius of the cylinder is 31 cm.
The height of the cylinder is 97.5 cm.

The tank is full of water.

Work out an estimate for the volume of water in the tank.
Give your answer in litres.
You must show your working.

Use 1000 cm3 = 1 litre.

.... **litres**

(Total for Question 12 is 3 marks)

11   3 kg of potatoes and 4 kg of carrots have a total cost of 440p.
        4 kg of potatoes and 3 kg of carrots have a total cost of 470p.

        Work out the total cost of 1 kg of potatoes and 1 kg of carrots.

....**P**

(Total for Question 14 is 4 marks)