



# GOING FOR GOLD

## Problem Solving

### Gold Paper 2

| Q  | Topic                         | My Mark | Maximum Marks |
|----|-------------------------------|---------|---------------|
| 1  | Ratio                         |         | 4             |
| 2  | Probability                   |         | 4             |
| 3  | Polygons                      |         | 4             |
| 4  | Area                          |         | 5             |
| 5  | Pythagoras                    |         | 4             |
| 6  | Forming and solving equations |         | 5             |
| 7  | Percentages                   |         | 4             |
| 8  | Circle                        |         | 5             |
| 9  | Exchange rates and proportion |         | 4             |
| 10 | Volume and surface area       |         | 4             |
|    |                               |         | <b>43</b>     |

### Question 1 - Ratio

At a school

Number of boys: number of girls = 9 : 7

There are 116 **more** boys than girls.

Work out the total number of students at the school.

(4 marks)

### Question 2 - Probability

There are some green counters, some yellow counters, some blue counters and some red counters in a bag.

The table shows the probabilities that a counter taken at random from the bag will be green or yellow or red.

|             |       |        |      |      |
|-------------|-------|--------|------|------|
| Colour      | Green | Yellow | Blue | Red  |
| Probability | 0.16  | 0.4    |      | 0.24 |

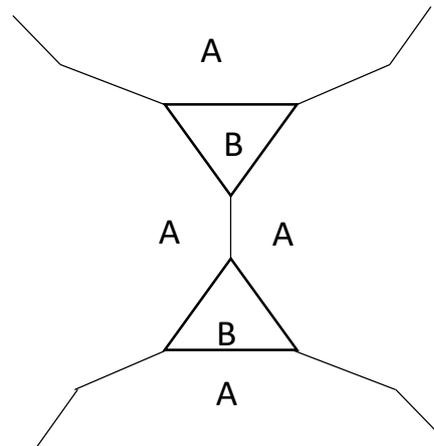
There are 125 counters in the bag.

Work out the number of blue counters in the bag.

(4 marks)

**Question 3 - Polygons**

The pattern is made from two types of tiles, tile A and tile B.



Both tile A and tile B are regular polygons.

Work out the number of sides tile A has.

(4 marks)

**Question 4 - Area**

Mr Weaver's garden is in the shape of a rectangle.

In the garden

there is a patio in the shape of a rectangle

and two ponds in the shape of circles with diameter 3.8 m.

The rest of the garden is grass.

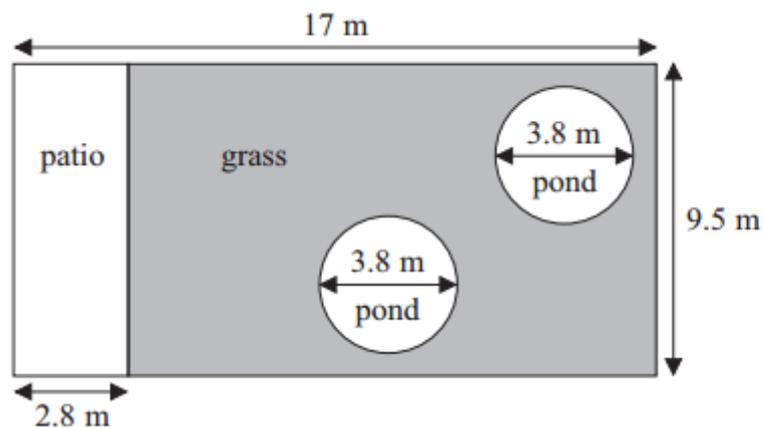


Diagram **NOT** accurately drawn

Mr Weaver is going to spread fertiliser over all the grass.

One box of fertiliser will cover  $25 \text{ m}^2$  of grass.

How many boxes of fertiliser does Mr Weaver need?

You must show your working.

(5 marks)

### Question 5 - Pythagoras

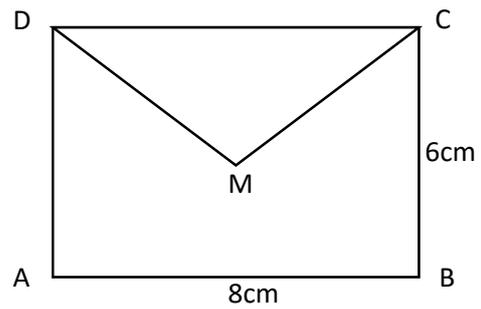
An envelope measures 6cm by 8cm.

The flap meets the envelope at the point  $M$ .

The point  $M$  is in the exact centre of the envelope.

A glue strip runs from  $D$  to  $M$  and  $M$  to  $C$ .

What is the length of the glue strip?

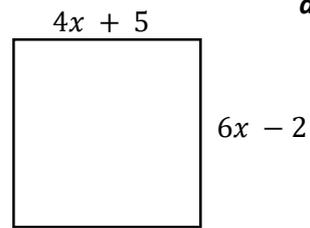


(4 marks)

**Question 6 - Forming and solving equations**

The diagram shows a square.

All the lengths are measured in centimetres.



*Diagram not  
drawn to scale*

Use an algebraic method to find the length of one side of the square.

(5 marks)

### Question 7 - Percentages

In a company, the ratio of the number of men to the number of women is 3 : 2

40% of the men are under the age of 25

10% of the women are under the age of 25

What percentage of all the people in the company are under the age of 25?

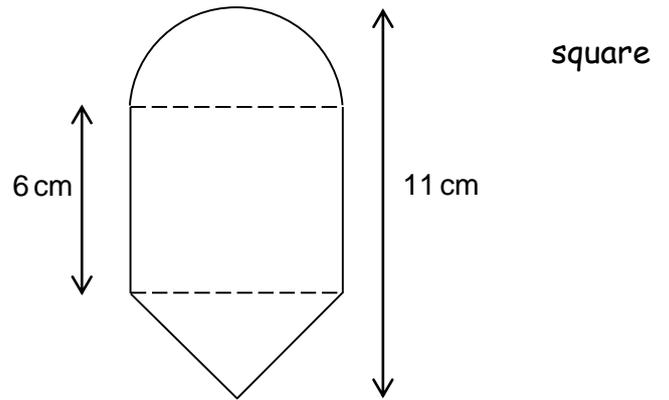
(4 marks)

**Question 8 - Circle**

A badge is made from an isosceles triangle, a square and a semi-circle.

Work out the area of the badge.

*Not drawn accurately*



(5 marks)

**Question 9 - Exchange rates and proportion**

Here is a list of ingredients for making 18 mince pies.

|   |
|---|
| <p style="text-align: center;"><b>Ingredients for 18 mince<br/>pies</b></p> <p>225 g of butter<br/>350 g of flour<br/>100 g of sugar<br/>280 g of mincemeat<br/>1 egg</p> |
|---|

Elaine wants to make 45 mince pies.

Elaine has

- 1 kg of butter
- 1 kg of flour
- 500 g of sugar
- 600 g of mincemeat
- 6 eggs

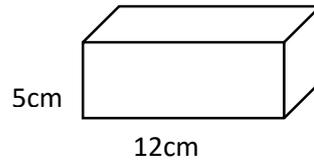
Does Elaine have enough of each ingredient to make 45 mince pies?

You must show clearly how you got your answer.

(4 marks)

**Question 10 - Volume and surface area**

This cuboid has a volume of  $360\text{cm}^3$ .



Work out its surface area.

(4 marks)