AQA Practice GCSE Examination Paper **Foundation Set 4 Paper 1 Non-Calculator**	**Time:** 1 hour 30 minutes	Set 4 of 10
	Standard equipment: pen, pencil, ruler, protractor, compasses. **Do *not* use a calculator.**	
Instructions to candidates: You must show all of your working. Write all answers in the spaces provided.		

1. What is $\frac{1}{4}$ as a decimal?

    Circle your answer.

    0.04   0.14   0.25   0.4

    Total 1 Mark

2. Simplify $3 - (2x - 2)$.
    Circle your answer.

    $4 - 2x$ $-1 + 2x$ $1 - 2x$ $5 - 2x$

    Total 1 Mark

3. What is 25% of 240?
    Circle your answer.

    6   60   108   180

    Total 1 Mark

4. Circle the value of $(-4)^3$.

    -64 -12 16 64

    Total 1 Mark

5. List all the factors of 36

    (2)

    Total 2 Marks

6. Tom and Zoe each have a bag of marbles.
    Tom has 29 marbles.
    Zoe has 11 marbles.
    Tom gives Zoe some marbles so that they both have the same amount.
    How many marbles did Tom give Zoe?

    _____ marbles   *(2)*

    Total 2 Marks

7.	A box of colouring pencils contains 18 pencils in total.
6 of the pencils were red.
5 of the pencils were blue.
3 of the pencils were green.
The rest of the pencils were yellow.
A colouring pencil is chosen from the box at random.
Work out the probability that this pencil was yellow.

_____ *(2)*

Total 2 Marks

8.	James has four boxes. Each box has a different number on it:
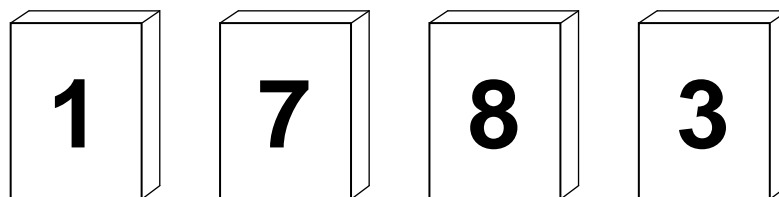
Two boxes can be combined to form a 2-digit number, e.g. boxes 1 and 8 make 18.
How many different ways can the boxes be combined to give a two-digit **odd** number?

_____ *(2)*

Total 2 Marks

9.	There are 48 apples in a box.
16 of the apples are green.
The rest of the apples are red.

(a)	Write down the ratio of the number of green apples to the number of red apples.
	Give your answer in its simplest form.

_____ : _____ *(2)*

(b)	What fraction of apples in the box are green?
	Circle your answer.

$$\frac{1}{3} \qquad \frac{1}{4} \qquad \frac{1}{5} \qquad \frac{1}{6}$$

(1)

Total 3 Marks

10. Here are the first four patterns in a sequence.
The patterns are made from white and shaded triangles.

Pattern	Pattern	Pattern	Pattern
Number 1	Number 2	Number 3	Number 4

(a) Draw the next pattern in this sequence.

(1)

(b) How many **shaded** triangles will there be in pattern number 10?
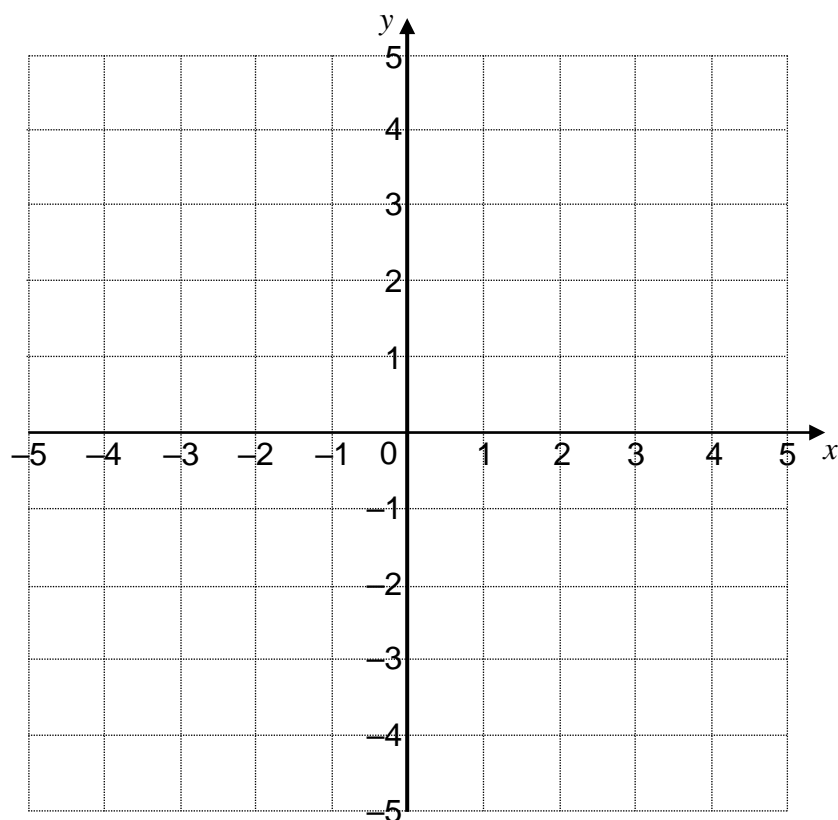Tick a box.

3 ☐   4 ☐

5 ☐   6 ☐

You must give a reason for your answer.

(2)

Total 3 Marks

11. Here is a centimetre grid:

A (–3, 3), B (1, 3), C (3, –1), and D (–5, –1) are four points.

What type of quadrilateral is ABCD?
You must show your working.

_____ *(2)*

Total 2 Marks
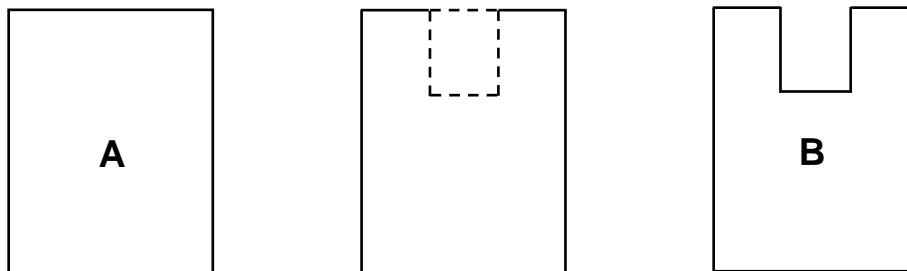
12. (a) Factorise $9z + 27$

_____ *(1)*

(b) Factorise $3p - 6pq$

_____ *(1)*

Total 2 Marks

13. Yara has a rectangular piece of paper, A.
     She cuts a smaller rectangle from A to form shape B.

Yara says,

"The perimeter of A is equal to the perimeter of B."

Is Yara correct?
Tick a box.

Yes ☐   No ☐

You must give a reason for your answer.

Total 2 Marks

14.
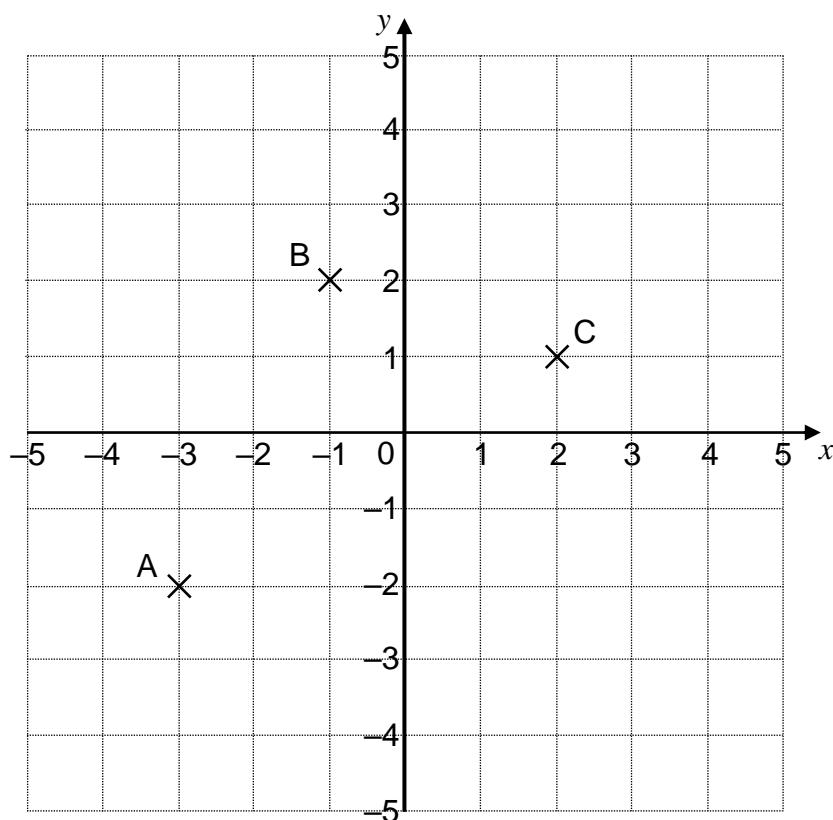
(a) Write down the co-ordinates of the point C.

(_____ , _____) *(1)*

(b) On grid above, mark the point D so that ABCD is a parallelogram. *(1)*

(c) What are the co-ordinates of the midpoint of AB?
Circle your answer.

$(0,0)$ $(0,-2)$ $(-3,1)$ $(-2,0)$ *(1)*
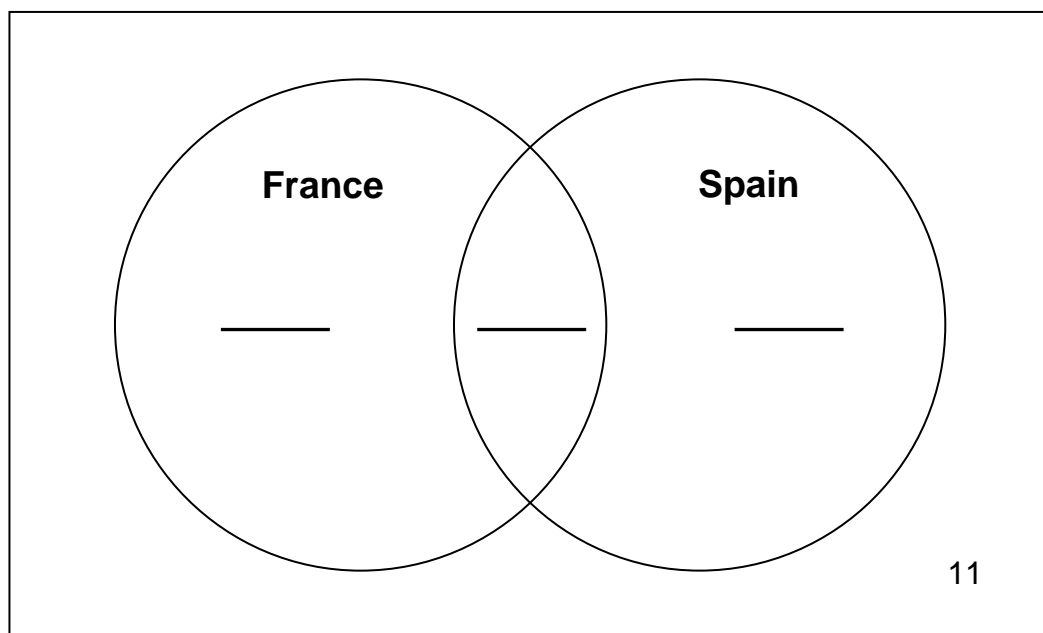
Total 3 Marks

15. Work out half of $9\frac{1}{2}$.
You must show your working.

_____ *(3)*

Total 3 Marks

16. 25 students were asked in a survey if they had ever been on holiday to France or Spain. Here is a Venn diagram which shows some information about their answers.

(a) How many students have not been on holiday to either France or Spain?

_____ (1)

(b) 11 of the students have been to France.
7 of the students have been to France but not Spain.
Complete the Venn diagram.

(3)

A student from the survey is picked at random.

(c) What is the probability that this student has been to both France and Spain?

_____ (2)

Total 6 Marks

17. Matilda runs a nursery.
The ratio of staff to children needed is given in the table.
Staff can only supervise one age group each.

| Child's Age	Staff : Children
Under 2 years	1 : 3
2 years	1 : 4
3 – 4 years	1 : 8

On a particular day, Matilda has
5 children under 2 years old,
8 children who are 2 years old,
and 20 children who are 3 – 4 years old booked in to the nursery.

What is the minimum number of adults needed for the 33 children?

(4)

Total 4 Marks

18. In a village there is a community hall.
A scale drawing of the hall in plan view is shown below.

A   B
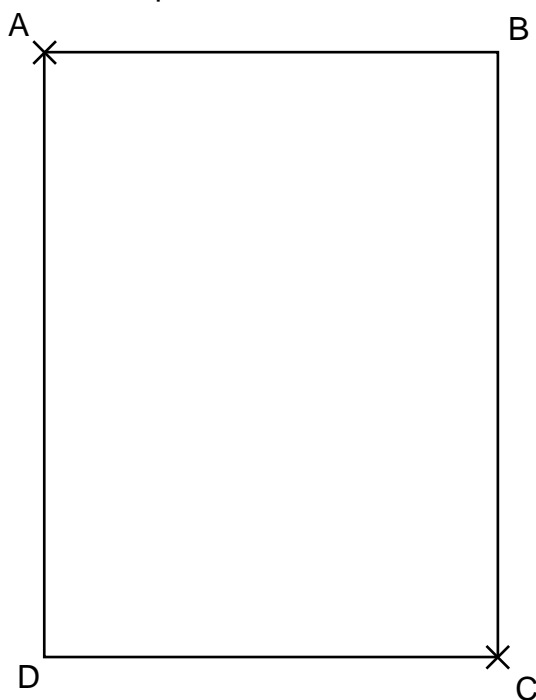
D   C   Scale: 1 cm represents 5 m

A Wi-Fi box is placed at point A.
The Wi-Fi signal has a range of 30 m from this point.

Kyle says he can connect to the wireless anywhere in the hall.

(a) Show, by construction, that Kyle is wrong.

(3)

Sadiq stands at point C.
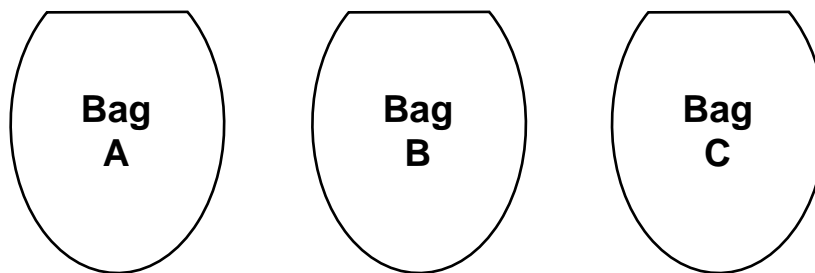He walks along a path that is equidistant from BC and CD.

(b) By construction, work out the minimum distance Sadiq must walk to be in an area covered by Wi-Fi signal.
You must show your working and any construction lines used.

_____ m   *(3)*

Total 6 Marks

19. Victoria has three bags, A, B and C.
Each bag contains a different number of marbles.

Bag
A

Bag
B

Bag
C

There are 60 marbles in total.
The total number of marbles in bags B and C is 37.
The difference between the number of marbles in bag A and bag B is 15.

Work out the number of marbles in each bag.
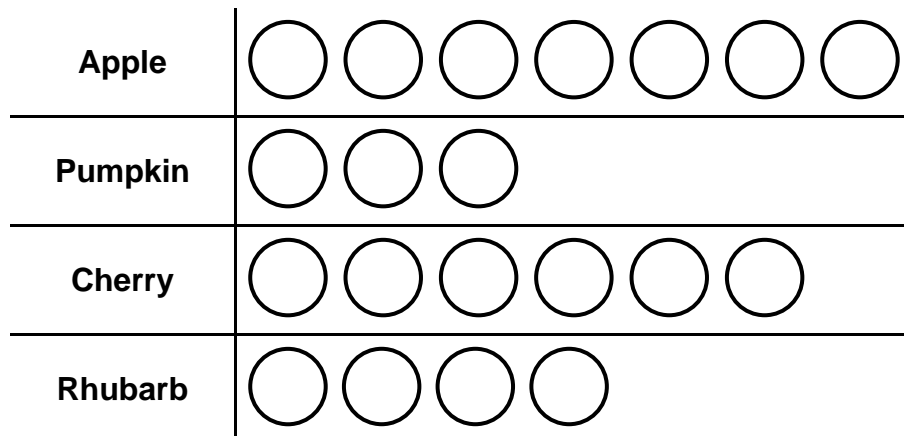*You must show your working.*

Bag A: _____

Bag B: _____

Bag C: _____ *(4)*

Total 4 Marks

20. Ned asked 40 people to take part in a survey to find out their favourite type of pie.
He recorded his results in the table.

Apple Pie	Pumpkin Pie	Cherry Pie	Rhubarb Pie
14	6	12	8

Ned uses the information to draw a pictogram.

Apple   ◯ ◯ ◯ ◯ ◯ ◯ ◯

Pumpkin   ◯ ◯ ◯

Cherry   ◯ ◯ ◯ ◯ ◯ ◯

Rhubarb   ◯ ◯ ◯ ◯

He forgets to include a key for the pictogram.

(a)   Which of these is the correct key for Ned's pictogram?
Circle a letter.

A

Key

◯   Represents 2 people

B

Key

◯   Represents 3 people

C

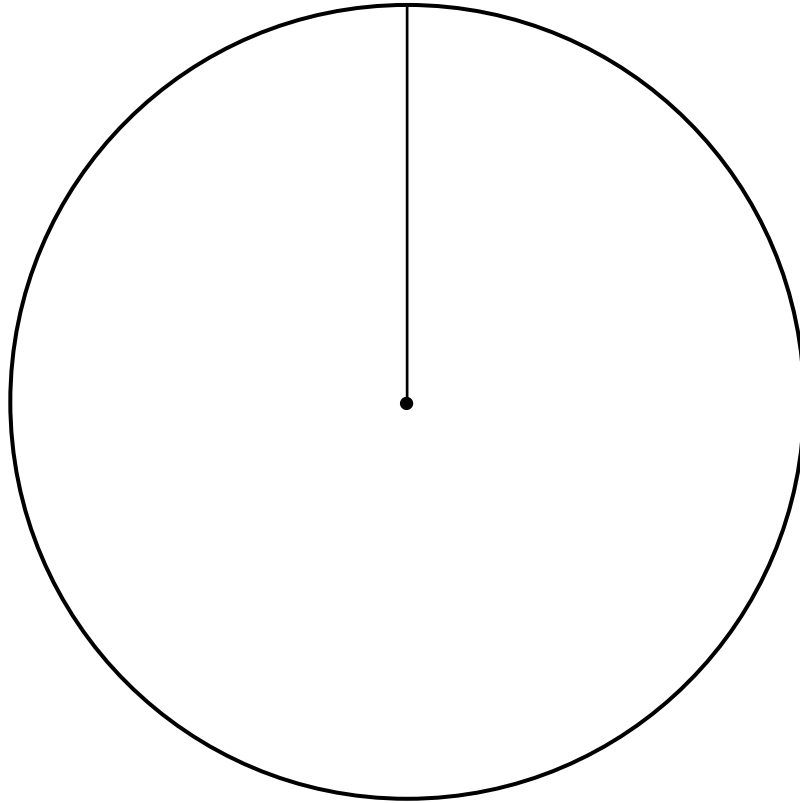**Key**

◯   Represents 4 people

D

Key

◯   Represents 5 people

(1)

(Question 20 continues on the following page)

(b) Draw an accurate pie chart to show the information in the table.
You must show all of your working.

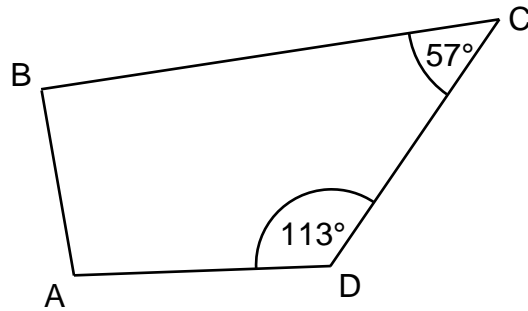*(3)*
Total 4 Marks

21. (a) Solve $2x + 18 = 3x + 4$

$x = $ _____ *(2)*

(b) Solve $3(x + 4) = 24$

$x = $ _____ *(2)*

Total 4 Marks

22. The diagram shows quadrilateral ABCD.

Show that AD is **not** parallel to BC.
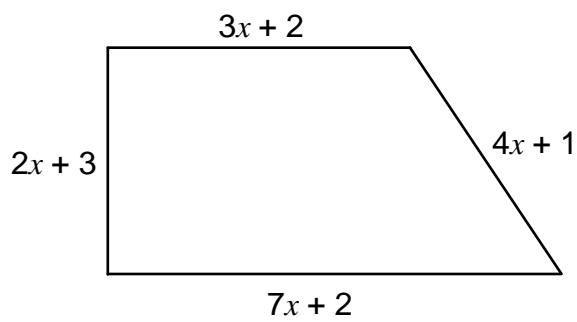*You must give your reasoning.*

(3)

Total 3 Marks

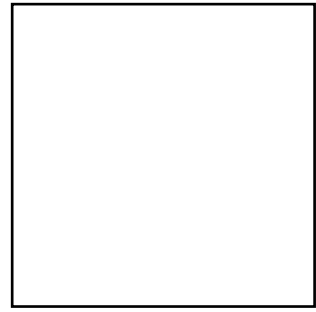23. Make r the subject of the formula $s = \dfrac{2r+3}{t}$

$r =$ _____ *(2)*

Total 2 Marks

24. Here is a trapezium and a square:

Not Drawn Accurately

In the diagram, all measurements are in centimetres.

The perimeter of the trapezium is the same length as the perimeter of the square.

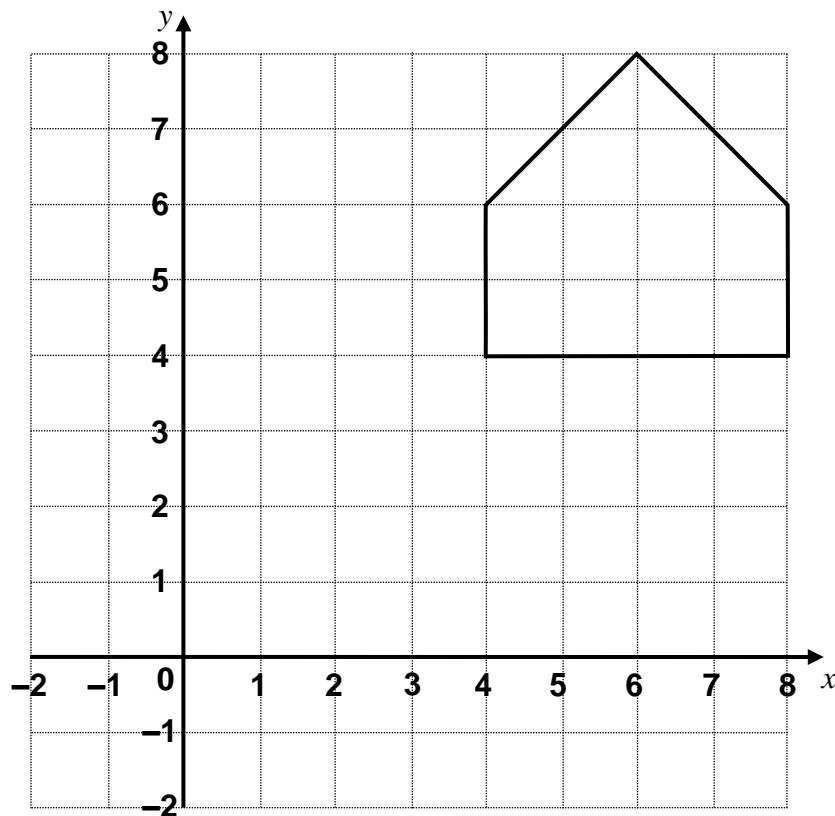(a) Work out an expression for the length of one side of the square.

_____ (3)

The square has a perimeter of 44 cm.

(b) Work out the value of x.

$x =$ _____ cm   (2)

Total 5 Marks

25.

Enlarge the shape by a scale factor of $\frac{1}{2}$ with centre of enlargement (0, 0). **Total 2 Marks**

26. Tomasz is saving to buy a new car.
His new car will cost £1,850.
Tomasz gets paid £1,800 every month.
He saves 40% of this pay.
How many months will it take Tomasz to save enough money to buy the new car?

_____ months *(3)*

Total 3 Marks

27. Megan places three solid balls inside a cylinder.
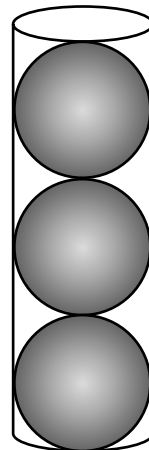
The diameter of each of the solid balls is 4 cm.

The diameter of the cylinder is 4 cm.
The height of the cylinder is 12 cm.

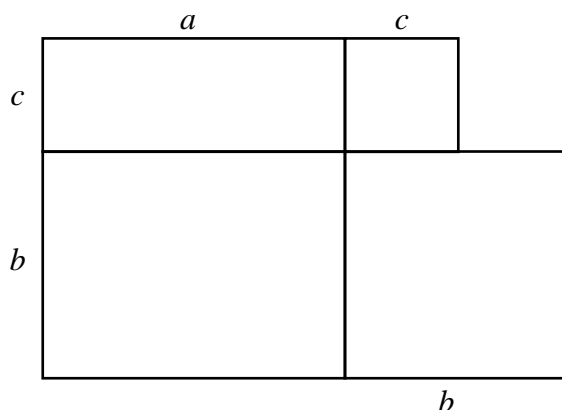Calculate the volume of unused space in the cylinder.
Give your answer in terms of π.

Volume of a sphere = $\dfrac{4}{3}\pi r^3$ where r is the radius of the sphere

_____ π cm^3 *(4)*

Total 4 Marks

28. A shape is made from squares and rectangles.

(a)   Shade the area represented by the expression ab.   *(1)*

(b)   Write down an expression for the perimeter of the whole shape.

_____ *(1)*

(c)   Write down an expression for the area of the whole shape.

_____ *(1)*

Total 3 Marks

Total For Paper: 80 Marks