

Maths Challenge Sheet

Q1.

Amina asked 60 children to choose their favourite flavour of jelly.

These were her results.

Flavour	Number of children
Raspberry	12
Lemon	8
Orange	15
Blackcurrant	25
Total	60

What **percentage** of the 60 children chose orange?

1 mark

Q2.

Write the missing number.

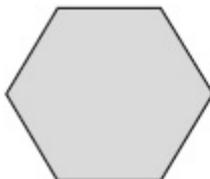
$$6 + 2 \times 2 - \square = 6$$

1 mark

Q3.

These two shapes have the **same** perimeter.

regular hexagon



square

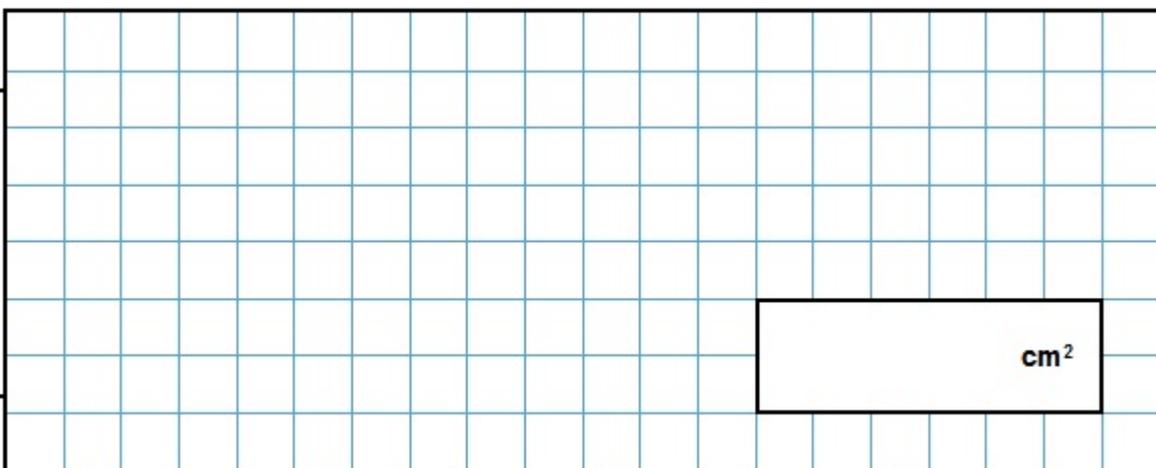


Not actual size

The length of each side of the **hexagon** is **8** centimetres.

Calculate the **area** of the **square**.

Show your method



cm²

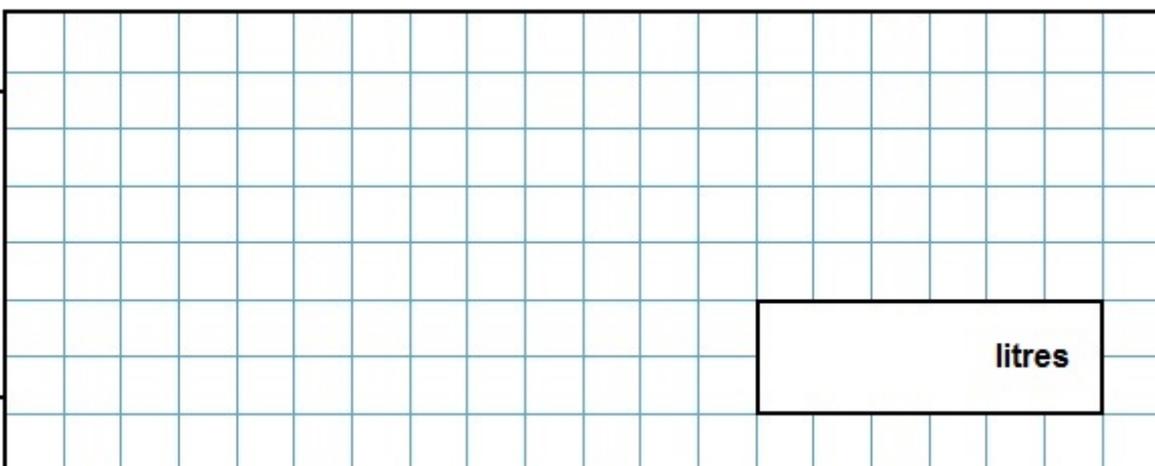
2 marks

Q4.

A machine pours 250 millilitres of juice every 4 seconds.

How many **litres** of juice does the machine pour every **minute**?

Show your method



litres

2 marks

Q5.

$$\frac{6}{5} \quad \frac{3}{5} \quad \frac{3}{4}$$

Write these fractions in order, starting with the **smallest**.

smallest

1 mark

Q6.

Tick the fractions that are **equal** to 20%.

$$\frac{1}{20} \quad \square$$

$$\frac{20}{40} \quad \square$$

$$\frac{1}{5} \quad \square$$

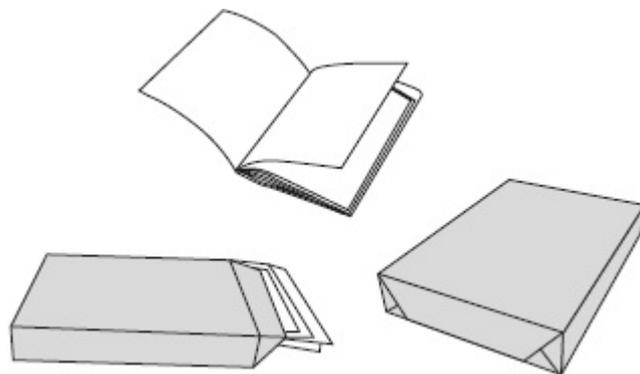
$$\frac{3}{15} \quad \square$$

$$\frac{2}{100} \quad \square$$

2 marks

Q7.

Adam is making booklets.



Each booklet must have **34** sheets of paper.

He has **2** packets of paper.

There are **500** sheets of paper in each packet.

How many complete booklets can Adam make from **2** packets of paper?

Mark schemes

Q1.

25

[1]

Q2.

4

[1]

Q3.

Award **TWO** marks for the correct answer of 144

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- $8 \times 6 = 48$
 $48 \div 4 = 13$ (error)
 $13 \times 13 = 169$

OR

Award **ONE** mark for:

- evidence for the side length of the square calculated correctly, i.e.
12

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2m

[2]

Q4.

Award **TWO** marks for the correct answer of 3.75

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- $60 \div 4 = 15$
- $250 \times 15 = 3750$
- $3750 \text{ ml} \div 1000 =$

OR

- $250 \div 4 = 62.5$ ml per second
- $62.5 \times 60 = 3750$
- $3750 \text{ ml} \div 1000 =$

OR

- $60 \div 4 = 15$, so there are 15 lots of 4 seconds in 1 minute so there are 15 bottles per minute.
- There are 4 bottles in 1 litre

• $15 \div 4 =$

Accept for **TWO** marks, 3,750 ml for final answer in working and the answer box blank **OR** 3,750 in the answer box where the litres has been replaced with millilitres.

Accept for **ONE** mark 3,750 litres (l) in the answer box **OR** the final answer in working and answer box blank.

Answer need not be obtained for the award of **ONE** mark.

Up to 2m

[2]

Q5.

Fractions written in the correct order, as shown:

$$\frac{3}{5} \quad \frac{3}{4} \quad \frac{6}{5}$$

Accept the fraction joined to the correct box, rather than written in it.

Do not accept transcription errors or misreads for this question.

[1]

Q6.

Award **TWO** marks for two boxes ticked correctly, as shown:

$\frac{1}{20}$	
$\frac{20}{40}$	
$\frac{1}{5}$	✓
$\frac{3}{15}$	✓
$\frac{2}{100}$	

If the answer is incorrect, award **ONE** mark for:

- only **ONE** box ticked correctly and no incorrect boxes ticked
- **TWO** boxes ticked correctly and **ONE** incorrect box ticked.

Accept alternative unambiguous positive indication of the correct answer, e.g. Y.

Up to 2m

[2]

Q7.

Award **TWO** marks for the correct answer of 29

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, e.g.

- $2 \times 500 = 1,000$
 $1,000 \div 34 =$

OR

- $2 \times 500 \div 34 =$

OR

- $500 \div 34 = 14 \text{ r}23$ (error)
 $14 \text{ r}23 \times 2 = 28 \text{ r}46$

OR

- $34 \times 10 = 340$
 $34 \times 30 = 1,020$

Answer = 30 booklets (error)

*Answer need not be obtained for the award of **ONE** mark.*

*Answer does not need to have been rounded or rounded correctly for the award of **ONE** mark.*

If a pupil reaches a non-integer answer, for example 28 r2 and expresses it as 28.2 without further working, this is considered a notation error and is condoned.

*Within an appropriate method, if the pupil's remainder from 500 divided by 34 is less than 17 and this remainder is ignored before doubling, this is acceptable for **ONE** mark. If the pupil's remainder is 17 or more and it has been ignored before doubling, this is **not** acceptable for **ONE** mark.*

Do not accept a trial and improvement method.

Up to 2 marks

[2]