



St. Patrick's High School, Keady

Mathematics Department

GCSE Mathematics Practice Booklet

M6

Topic 4 – Number 2

Non-Calculator questions involving whole numbers, fractions, decimals and percentages

All questions in this booklet are taken from non-calculator past papers

Questions taken from CCEA Past Papers

Q1 Given that $32.5 \times 24 = 780$, write down the value of

(a) 32.5×2.4

Answer _____ [1]

(b) $78 \div 24$

Answer _____ [1]

(c) 32.5×12

Answer _____ [1]

Q2 Use the information $639 \times 8.5 = 5431.5$ to find the value of

(a) 6.39×85

Answer _____ [1]

(b) $543.15 \div 850$

Answer _____ [1]

Q3

240 people are at the cinema.

There are 150 children.

$\frac{3}{5}$ of the children are girls.

$\frac{2}{3}$ of the adults are male.

Cara says that altogether there are more females at the cinema.

Is she correct?

Show all your working clearly.



Answer _____ because _____ [4]

Q4 Chairs are set out for a school concert.

There are 23 rows of 9 chairs on each side of a middle aisle.

382 people attend the concert.

How many empty seats are there?

Answer _____ [3]

Q5 Use $5 \times 12 = 60$ $60 \div 5 = 12$ and $12 \div 5 = 2.4$
to complete the following.

(a) $\times 12 = 600$ [1]

(b) $600 \div$ $= 120$ [1]

(c) $12 \div 50 =$ [1]

Q6**(a)** Work out the missing number.

$$54 \times 4 \times \square = 5400$$

Answer _____ [1]

(b) Work out the missing number.

$$68 \times 40 + 68 \times \square = 6800$$

Answer _____ [1]

Q7

Grace cannot divide a number by 36

Her friend Chloe says,

“That’s easy. Divide first by 4 and then divide by 9 as $4 \times 9 = 36$ ”

Use Chloe’s method to divide 5238 by 54

Show your work.

Answer _____ [2]

Q8

Given that $\frac{29400}{245} = 120$, **write down** the answer to

(a) $\frac{2940}{245}$

Answer _____ [1]

(b) 245×240

Answer _____ [1]

(c) 24.5×1.2

Answer _____ [1]

Q9

Ross works out $200 \times 90 = 18\,000$

Write down a calculation Ross could use to check his answer.

Answer _____ [1]

Q10 The United Kingdom (UK) is made up of England, Northern Ireland, Scotland and Wales.

In 2019 the population of the UK was 65.8 million.

The table shows the population in 2019 in 3 of the countries.

| Country | Population |
|------------------|--------------|
| England | 55.4 million |
| Northern Ireland | 1.9 million |
| Scotland | 5.4 million |
| Wales | |

(a) What was the population of Wales in 2019?

Answer _____ million [2]

(b) What is the place value of the 4 in 55.4 million?

Answer _____ [1]

Q11

(a) Show how Jack can **estimate** an answer to $588 \div 18$ and write down his answer.

Answer _____ [2]

(b) Jill knows that she can divide by 18 by first dividing by 3 and then by 6

Using a similar method to Jill's, show how you can calculate $972 \div 36$ and give your answer.

Answer _____ [3]

Q12

(a) Given that $23 \times 146 = 3358$

write down the answer to 2.3×1.46

Answer _____ [1]

(b) Showing clearly how you do it, **estimate** the answer to

$$\frac{202 \times 29}{0.48}$$

Answer _____ [3]

Q13

A drill costs £38.50 plus 20% VAT.
Calculate the VAT.

Answer £ _____ [2]

Q14 A television costs £270 plus VAT.

VAT is charged at 20%.

Calculate the VAT charged.

Answer £ _____ [2]

Q15 Sara uses $\frac{3}{5}$ of a tube of sun cream each day on holiday.

How many tubes of sun cream will she need to buy for a 7 day holiday?

Answer _____ [2]

Q16

Tom bought a full bag of coal.

After one week the bag was $\frac{2}{3}$ full.

During the next week he used $\frac{1}{4}$ of the remaining coal.

What fraction was left in the bag?

Answer _____ [2]

Q17

A cinema has two screens.

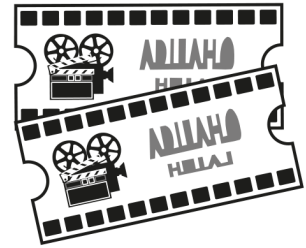
500 people go to this cinema on a Saturday evening.

$\frac{3}{5}$ of these people go to screen 1

40% of the people who go to screen 2 are children.

How many children go to screen 2?

Show all your working.



Answer _____ [3]

Q18

One Saturday, 460 people visited the museum.

180 were children of which $\frac{3}{5}$ were girls.

280 were adults and the ratio of men to women was 4:3

Paul says that, altogether, more males than females visited the museum that Saturday.

Is he correct?

Show all your working.

Answer _____ [4]

Q19

“Look Dad,” said Erin.

“Here are all the silver coins from my piggy bank.”

“How much have you got?” said Dad.

“ $\frac{1}{3}$ are 5p coins, $\frac{1}{4}$ are 10p coins and the other 10 coins are 50p coins,” said Erin.

What is Erin’s total amount of money?

Show all working.

Answer _____ [5]

Q20

800 students attend Clarendon College.

15% of them are in Year 11

10% of Year 11 students are in the Spanish class.

Of **all** the students in Clarendon College, how many **are not** in the Year 11 Spanish class?

Answer _____ [3]

Q21

There are 45 000 people in the town of Arrondale.

(a) $\frac{2}{9}$ of the people are children.

How many are children?

Answer _____ [2]

(b) 30% of the people in Arrondale are over 65

How many are over 65?

Answer _____ [2]

Q22

Jon earns £9 per hour.

He worked 25 hours last week.

He saved $\frac{2}{5}$ of his earnings.

(a) How much did he save?

Answer £ _____ [3]

When Jon is 21 years old he will get a 15% pay rise.

(b) How much **extra** will he earn per hour?

Answer £ _____ [2]

Q23

Beechgrove High School has 1200 pupils in total.

45% of the pupils are girls.

(a) Work out the number of girls in the school.

Answer _____ [2]

There are 240 pupils in Year 12

(b) What percentage of the pupils in the school are in Year 12?

Answer _____% [2]

Q24

A bag contains 140 g of crisps.

30% is fat.

How many grams is this?

Answer _____ g [2]

Q25

Kevin owns a business.

$\frac{3}{5}$ of his customers pay by card.

$\frac{2}{7}$ pay in cash.

The rest pay by cheque.

What fraction pay by cheque?

Answer _____ [3]

Q26 Calculate 5% of 45

Answer _____ [2]

Q27 At the beginning of January an oil tank was $\frac{3}{4}$ full.

At the end of March it was $\frac{1}{6}$ full.

What fraction of the tank was used?

Show your working.

Answer _____ [2]

Q28

In April, 30 males and 20 females took their driving test.

50% of the males passed and 40% of the females passed.

What percentage of people who took the test failed?



Answer _____ % [3]

Q29

The pulse rate of an athlete is taken before and after training.

His starting pulse was 54 beats per minute.

After training, it increased by $\frac{1}{6}$ of this value.

Show that each beat now lasts less than 1 second.



[4]

Q30

There are 30 pupils in a class.

$\frac{3}{5}$ are girls.

$\frac{2}{9}$ of the girls are absent.

25% of the boys are absent.

(a) Complete the table to show this information.

| | Girls | Boys |
|------------------|-------|------|
| Number of pupils | | |
| Absent | | |
| Present | | |

[2]

(b) What fraction of the pupils are present?

Answer _____ [1]

1. (a) 78 A1
 (b) 3.25 A1
 (c) 390 A1
-

2. (a) 543.15 A1
 (b) 0.639 A1
-

- 3.
- | Children | Adults | |
|--|-------------------|---------|
| 150 | 90 | A1 |
| 90 girls/60 boys | 60 male/30 female | MA1 MA1 |
| No, because there are the same number (120) of males and females | | A1 |
-

4. $46 \times 9 = 414$ M1 A1
 $414 - 382 = 32$ MA1
-

- 5.
- | | | |
|------------|------|----|
| (a) | 50 | A1 |
| (b) | 5 | A1 |
| (c) | 0.24 | A1 |
-

- 6.
- | | | |
|------------|----|----|
| (a) | 25 | A1 |
| (b) | 60 | A1 |
-

- 7.
- | | | | |
|-----------|---------------------|-------------------|--------|
| | $54 = 9 \times 6$ | $582 \div 6 = 97$ | MA1 A1 |
| | $5238 \div 9 = 582$ | | |
| or | | | |
| | $5238 \div 6 = 873$ | $873 \div 9 = 97$ | |
-

- 8.
- | | | |
|------------|-------|----|
| (a) | 12 | A1 |
| (b) | 58800 | A1 |
| (c) | 29.4 | A1 |
-

9. $18\ 000 \div 200 = 90$ or $18\ 000 \div 90 = 200$ A1

10. (a) $65.8 - (55.4 + 1.9 + 5.4) = 3.1$ M1 A1
 (b) 400 000 or 4 hundred thousand A1

11. (a) $600 \div 20 = 30$ M1 A1
 (b) $972 \div 4 = 243$ $243 \div 9 = 27$ M1 A1 A1
 or
 $972 \div 9 = 108$ $108 \div 4 = 27$
 or
 accept use of 3, 12 or 6, 6 or 3 divisors, e.g. 2, 3, 6

12.

(a) 3.358

MA1

(b) $\frac{200 \times 30}{0.5}$

A1

= $\frac{6000}{0.5}$

A1

= 12000

A1

13.

$38.50 \div 5 = 7.70$

M1 A1

or 10% of $38.50 = 3.85$, $3.85 \times 2 = 7.70$

M1 A1

14.

20% of £270

M1

£54

A1

15.

$\frac{3}{5} \times 7 = \frac{21}{5}$ (4.2)

MA1

5 tubes needed

A1

16.

$$\frac{3}{4} \times \frac{2}{3} = \frac{1}{2}$$

M1 A1

or $\frac{1}{4} \times \frac{2}{3} = \frac{1}{6}$

MA1

$$\frac{2}{3} - \frac{1}{6} = \frac{1}{2}$$

A1

17.

$$\frac{3}{5} \times 500 = 300$$

MA1

$$500 - 300 = 200$$

MA1

$$40\% \text{ of } 200 = 80$$

MA1

follow through only for clearly seen correct method but numerical error,

e.g. $\frac{3}{5} \times 500 = 150$ leading to answer 140 (40% of 350) gains 2 marks

18.

72 Boys 108 Girls

MA1

160 Men 120 Women

M1 A1

232 Males 228 Females

Yes Paul is correct

MA1

19.

$$\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$$

M1 A1

$$\frac{5}{12} = 10 \text{ coins, so } \frac{1}{12} = 2 \text{ coins}$$

MA1

$$\frac{1}{3} = 8 \text{ coins, } \frac{1}{4} = 6 \text{ coins or } 24 \text{ coins in total}$$

MA1

Total amount of money = $8 \times 5 + 6 \times 10 + 10 \times 50 = \text{£}6.00$
follow through only for numerical errors in clear methods

MA1

20.

$$15\% \text{ of } 800 = 120$$

MA1

$$10\% \text{ of } 120 = 12$$

MA1

$$800 - 12 = 788$$

MA1

21.

$$(a) \frac{45000}{9} \times 2 = 10000 \quad \text{or } 45000 \times 2 \div 9 = 10000$$

M1 A1

$$(b) 10\% = 4500 \quad 30\% = 13500$$

M1 MA1

22.

(a) $9 \times 25 = 225$ or $\frac{2}{5} \times 25 = 10$ MA1

$225 \times 2 \div 5 = 90$ or $10 \times 9 = 90$ M1 A1

(b) $9 \times 15 \div 100 = 1.35$ M1 A1

or
(10% of £9 = 90p; 5% of £9 = 45p; 1.35) (M1 A1)

or
(1% of £9 = 9p 15% = 15 × 9p = £1.35) (M1 A1)

23.

(a) $\frac{45}{100} \times 1200 = 540$ M1 A1

(b) $\frac{240}{1200} \times 100 = 20$ M1 A1

24.

10% = 14
30% = 14 × 3 = 42 M1 A1

25.

$$\frac{3}{5} + \frac{2}{7} = \frac{21}{35} + \frac{10}{35} = \frac{31}{35}$$

$$\frac{4}{35}$$

M1 A1

A1

26.

$$\frac{5}{100} \times 45$$

M1

$$2.25$$

A1

Alternative

$$10\% = 4.5 \quad 5\% = 2.25$$

MA1 A1

27.

$$\frac{3}{4} - \frac{1}{6} = \frac{9}{12} - \frac{2}{12}$$

M1

$$\frac{7}{12}$$

A1

28.

$$50 - 23 = 27 \text{ failed}$$

MA1

$$\frac{27}{50} \times 100 = 54$$

M1 A1

29.

$$\frac{1}{6} \times 54 = 9$$

MA1

$$54 + 9 = 63$$

MA1

More than 60 which is 1 beat per second

M1 A1

or

$\frac{60}{63}$ is less than 1

30. [gcse_maths_GMC61_M6_1_S_2023_F_MS_Q5.png](#)
