



Aberdare Community School
Mathematics Department

WJEC GCSE
Higher – Non Calculator
Number

Number - middle of paper questions

Name:

Set:

Date:

Teacher:

7. (a) The cost of a stand season ticket last year was £200. This year it has increased to £250. Find the percentage increase in the cost of the stand season ticket.

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[3]

- (b) Two friends, Nigel and Paul, decide to share the cost of a £100 field season ticket in the ratio 4:1.

- (i) How much **each** should each of Nigel and Paul pay towards the cost of the ticket?

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Nigel pays Paul pays

[2]

- (ii) In the season there are 45 matches to attend. Nigel suggests that they take it in turns to attend every other match. Would this be a fair suggestion? You must explain your answer giving an alternative suggestion if you decide that this would not be a fair method.

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[2]

6. Jane scored 140 out of 200 in a Mathematics test. In an English test she scored 48 out of 60. Work out the percentage score that Jane had

(a) in the Mathematics test,

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[2]

(b) in the English test.

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[1]

6. Clearly showing how you obtained your answer, ESTIMATE the value of

$$\frac{312 \times 49}{502} .$$

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7. (a) In an examination, a pupil scores 165 marks out of a total of 300 marks. What percentage is this?

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5. (a) Estimate the value of $\frac{58 \times 21}{98}$.

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- (b) Given that $34 \times 670 = 22\,780$, find the value of $\frac{22\,780}{67}$.

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[1]

- (c) Estimate the value of 8.037×2.976 .

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[1]

- (d) Write down the value of a half of $\frac{3}{4}$.

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[1]

- (f) Find the value of the reciprocal of 0.7.

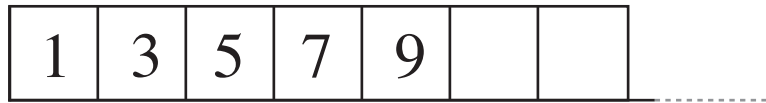
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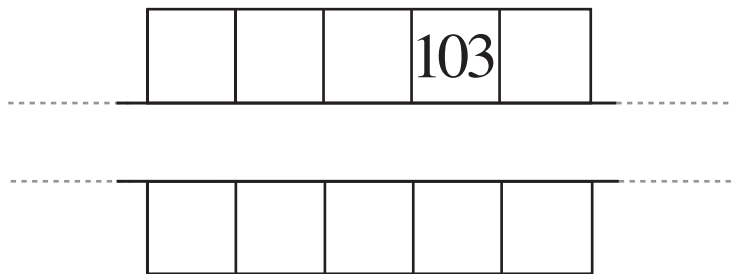
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7. The houses on one side of a long street have odd numbers and the houses on the other side of the street have even numbers.



- (a) Fill in the numbers on these houses.



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- (b) The numbers on five houses next to each other on one side of the street total 65. What are the numbers on these five houses?

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- (c) The product of the numbers on two houses which are directly opposite each other is 380. What are the numbers on these two houses?

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6. (a) Estimate the value of $\sqrt{902}$.

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[1]

- (b) Write down the square number which is closest to 90.

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[1]

- (c) Estimate the value of $\frac{39 \times 403}{79}$.

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[2]

- (d) What is half of a quarter?

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[1]

- 6. (a) The cost of a stand season ticket last year was £200. This year it has increased to £250. Find the percentage increase in the cost of the stand season ticket.

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[3]

- (b) Two friends, Nigel and Paul, decide to share the cost of a £100 field season ticket in the ratio 4:1.

- (i) How much **each** should Nigel and Paul pay towards the cost of the ticket?

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Nigel pays Paul pays

[2]

- (ii) In the season there are 45 matches to attend. Nigel suggests that they take it in turns to attend every other match. Would this be a fair suggestion? You must explain your answer giving an alternative suggestion if you decide that this would not be a fair method.

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[2]

(d) Rhian plants 250 daffodil bulbs in her lawn.
She finds that in the spring only 180 bulbs flower.

(i) Find the percentage of the bulbs planted that flower in the spring.

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(ii) Rhian’s friend intends to plant a number of similar bulbs.
What is the probability that a bulb planted does **not** flower?

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[3]

6. (a) One Monday morning a bug fell down a hole 55 cm deep. The bug immediately tries to climb out of the hole.
The bug climbs $\frac{1}{4}$ of a metre during the day, but every night it slides down $\frac{1}{8}$ of a metre.
On what day will the bug get out of the hole?
You must show your working.

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[3]

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5. (a) Given that

$$234 \times 789 = 184626$$

find

(i) 23.4×7.89 ,

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(ii) $\frac{18462.6}{2.34}$,

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(iii) 117×789 .

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[3]

(b) Share £385 in the ratio 2 : 9.

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[2]

(c) Estimate the value of $\frac{607.45}{0.2498}$.

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[2]

4. (a) Three sisters, Ruth, Joanne and Sharon share a prize in the ratio 2 : 5 : 8 respectively. Sharon receives £1 760 which is the largest share. Find how much Ruth and Joanne each receive.

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Ruth £

Joanne £

[4]

5. You will be assessed on the quality of your written communication in this question.

Square numbers: 1 4 9 16

Investigate whether square numbers have an odd number of factors.
Show all your working.
You must give a conclusion with an explanation for your answer.

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6. Admiralty Brass contains copper, zinc and tin in the ratio 69 : 30 : 1.
When 345 kg of copper is used to make Admiralty Brass, calculate the quantities of zinc and tin that are needed.

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Zinc = kg Tin = kg

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5. The **product** of two numbers is -65 .
The **sum** of these two numbers is 8 .
Find the two numbers.

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7. (a)

Approximate population of Wales	
Date	Number of people
1801	600 000
1851	1 200 000

Calculate the percentage increase in the population of Wales from 1801 to 1851.

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(b) A jeweller buys an ancient Welsh gold ring for £120, then sells it making a 40% profit. How many pounds profit does the jeweller make?

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5.

(b) Share £300 in the ratio 5 : 7.

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5. (a) Cheryl scored 60 marks out of 80 in a test.
Express Cheryl's score as a percentage.

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- (c) Calculate 75% of £562.80.

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7.

(c) Evaluate $\frac{1}{5} \div \frac{1}{3}$.

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[1]

6. (a) Write down $\sqrt[3]{125}$.

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[1]

(b) Write down the reciprocal of a quarter.

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[1]

5. (a) Freddy goes to buy a ticket for a concert.
A sign by the ticket office states “20% off all original ticket prices”.
Freddy comes away having paid a reduced price of £36.80 for his ticket.
What was the original price of Freddy’s ticket?

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[3]

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5. (a) Divide £2680 in the ratio 5:3:2.

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5. (a) Evaluate 4.21×1.3 giving your answer correct to 2 significant figures.

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6. Alma is mixing paint.

She needs to create a colour that is a mix of yellow, blue and white paint in the ratio 2 : 3 : 10.
She wants to make 4.5 litres of this colour paint.

Alma has enough yellow and white paint, but she needs to buy the blue paint.

Blue paint is sold in $\frac{1}{2}$ litre tins, with each tin costing £3.72.

- (a) *You will be assessed on the quality of your written communication in this part of the question.*

Calculate how much Alma will need to spend on buying the blue paint.
You must show **all** your working.

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[7]

- (b) How much of the blue paint will Alma have left over?

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[1]

6. Three farmers shared an order for fertiliser between them in the ratio 3:4:7.
Jade got the largest share.
Bethan got the smallest share.
Noah's share was 60 kg.
Calculate how much of the fertiliser Jade and Bethan each received.

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Jade kg

Bethan kg

[4]

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6. Manilo won some money.

He gave each of his close friends $\frac{1}{24}$ of the money he won.

He kept the remaining $\frac{2}{3}$ of the money for himself.

How many close friends does Manilo have?

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6. Showing all your working, **estimate** the value of

$$\frac{895.7 \times 0.108}{0.315^2}$$

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6. State whether the following statements are true or false.
You must give a reason for each of your answers.

(a) "All prime numbers have more than two factors."

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True or False?

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(b) "All square numbers have an odd number of factors."

[2]

True or False?

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6.

(c) Write down the value of the reciprocal of 0.01.

[1]

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