



GCSE Foundation/Higher 07

Number



Questions



85 minutes



74 marks

Calculation

- Q1.** In a game players score points.
The table shows the number of points Alex scored in 50 games.

Number of points	Number of games
0	13
1	8
2	6
3	8
4	15
Total = 50	

- (a) In what fraction of the 50 games did Alex score 4 points?
Give your answer in its simplest form.

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Answer

(2)

- (b) Alex says he scored **more** than 100 points in total.

Show that he is correct.

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(3)

(Total 5 marks)

- Q2.** Bella wants to buy 12 tins of baked beans for a barbeque.
Two supermarkets have these special offers.

PriceSave
Baked beans
Normal price 50 p
Special offer
30% off all tins

CostCut
Baked beans
Normal price 48 p
Special offer
Pay for 3 tins, get 1 free

Which is cheaper?
You **must** show your working.

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Answer

(Total 5 marks)

- Q3.** Use approximations to estimate the value of $\frac{10.13^2}{0.496}$

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Answer

(Total 2 marks)

Q4. Use approximations to estimate the value of $\frac{795.4}{2.1^2 \times 9.8}$

You **must** show your working.

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Answer

(Total 3 marks)

Q5. Given that $25.6 \times 32 = 819.2$

(a) work out $\frac{81.92}{32}$

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Answer

(1)

(b) work out 0.256×320

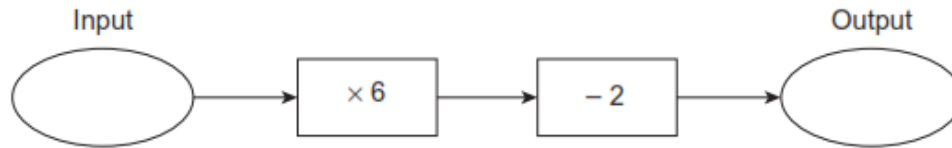
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Answer

(1)

(Total 2 marks)

Q6. Here is a number machine.



The output is twice the input.

Work out the input.

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Answer

(Total 3 marks)

Q7. Last year, 12 students went to the theatre.
The total cost of the tickets was £240.

This year, 8 students are going.
The cost of each ticket has increased by 15%.
They have a total of £200.

Is this enough to buy 8 tickets?
You **must** show your working.

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(Total 5 marks)

Q8. Estimate the value of $\frac{\sqrt{99}}{19}$

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Answer

(Total 2 marks)

Q9. At a wedding reception there are 103 people at 12 tables.
There are eight or nine people at each table
How many tables are there with eight people?

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Answer

(Total 4 marks)

Q10. Work out $\frac{3.18 + 5.7}{0.3 \times 5.6}$

(a) Write down your full calculator display.

Answer

(1)

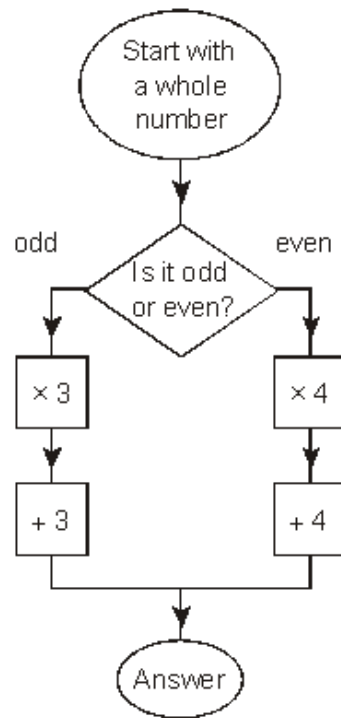
(b) Give your answer to one decimal place.

Answer

(1)

(Total 2 marks)

Q11. (a) Here is a flow chart.



(i) The final answer is 36

What are the **two** possible starting numbers?

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Answer or

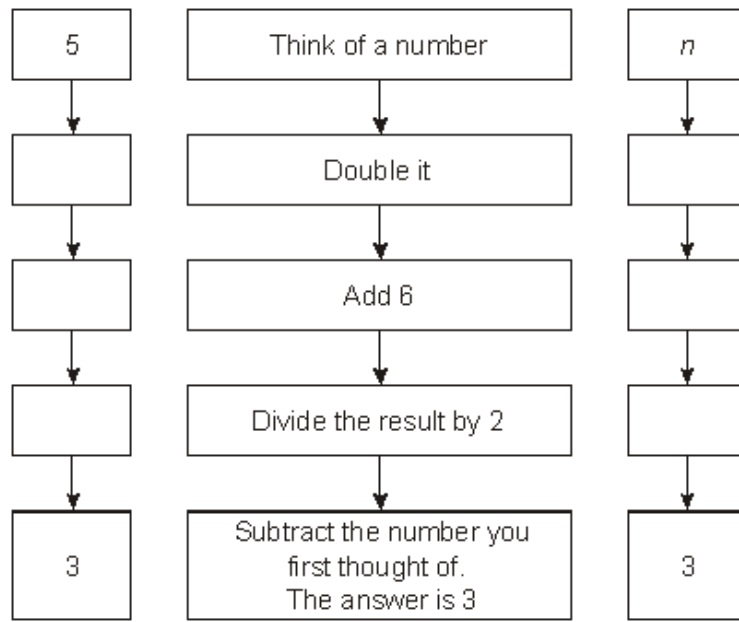
(2)

(ii) Explain why starting with an odd number always gives an even number as the answer.

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(2)

(b) The middle column below shows the steps in a 'Think of a Number' problem.



(i) Starting with a value of 5, work through the left-hand column, writing in all the missing numbers.






(1)

(ii) Starting with a value of n , work through the right-hand column, writing in all the missing expressions.

(3)

(Total 8 marks)

Q12. Mollie's Cookie Shop sells cookies individually or in bags of 5, 8, 13 or 18.

				
1 cookie	5 cookies	8 cookies	13 cookies	18 cookies
75p	£2.25	£2.99	£3.99	£4.99

What is the cheapest way to buy exactly 50 cookies?
You **must** show your working.

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Answer £

(Total 3 marks)

- Q13.** Polly Parrot squawks every 12 seconds.
Mr Toad croaks every 21 seconds.
They both make a noise at the same time.

After how many seconds will they next make a noise at the same time?

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Answer seconds

(Total 2 marks)

- Q14.** Matthew is investigating the costs of using a mobile phone.

He finds that there are two methods of paying for his phone calls.

Contract
£14 a month fixed charge
30 minutes of free calls
then 10p per minute

Pay as you go
No fixed charge
No free minutes
40p per minute

Matthew expects to spend 150 minutes using a mobile phone each month.

Which method is cheaper, 'Contract' or 'Pay as you go'?
You **must** show your working.

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Answer

(Total 4 marks)

- Q15.** (a) Change a speed of 72 kilometres per hour into miles per hour.

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Answer miles per hour

(2)

- (b) A car travels 200 kilometres in 3 hours 30 minutes.
Calculate its average speed in kilometres per hour.
Give your answer to an appropriate degree of accuracy.

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Answer kilometres per hour

(4)

(Total 6 marks)

Q16. Tom, Sam and Matt are counting drum beats.

Tom hits a snare drum every 2 beats.
Sam hits a kettle drum every 5 beats.
Matt hits a bass drum every 8 beats.

Tom, Sam and Matt start by hitting their drums at the same time.
How many beats is it before Tom, Sam and Matt **next** hit their drums at the **same** time?

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Answer beats

(Total 2 marks)

Q17. Use approximations to estimate the value of $\frac{316 \times 4.03}{0.198}$

You **must** show your working.

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Answer

(Total 3 marks)

- Q18.** Jenny is organising a barbecue.
 There are 30 bread rolls in a pack.
 There are 16 sausages in a pack.
 She needs **exactly** the same number of bread rolls as sausages.
 What is the smallest number of each pack she must buy?
 You **must** show all your working.

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Answer packs of rolls
 and packs of sausages

(Total 3 marks)

- Q19.** When written as the product of prime factors $225 = 3^2 \times 5^2$

- (a) Write 150 as the product of prime factors.
 Give your answer in index form.

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Answer

(3)

- (b) Work out the highest common factor (HCF) of 225 and 150.

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Answer

(2)

(Total 5 marks)

Q20. Write 108 as the product of its prime factors.
Give your answer in index form.

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Answer

(Total 3 marks)

Q21. Calculate $\sqrt{9.61} + 2.91^2$

Give your answer to 3 significant figures.

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Answer

(Total 2 marks)

