

Edexcel GCSE

Mathematics

Foundation Tier

Number: Decimals

Information for students

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).
There are 108 questions in this selection.

Advice for students

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

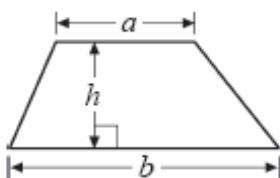
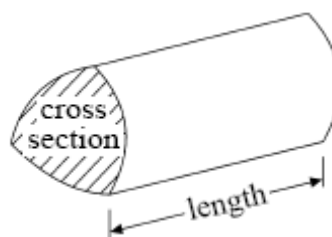
Information for teachers

The questions in this document are taken from the 2009 GCSE Exam Wizard and include questions from examinations set between January 2003 and June 2009 from specifications 1387, 1388, 2540, 2544, 1380 and 2381.

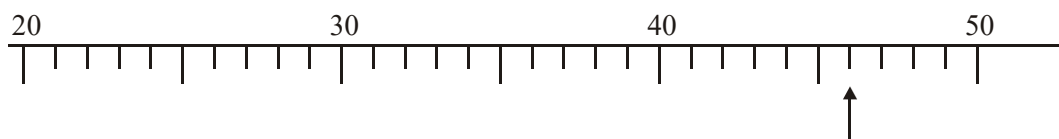
Questions are those tagged as assessing “Decimals” though they might assess other areas of the specification as well. Questions are those tagged as “Foundation” so could have (though not necessarily) appeared on either a Foundation or Intermediate tier paper.

GCSE Mathematics

Formulae: Foundation Tier

You must not write on this formulae page.**Anything you write on this formulae page will gain NO credit.****Area of trapezium** $= (a + b)h$ **Volume of prism** $= \text{area of cross section} \times \text{length}$ 

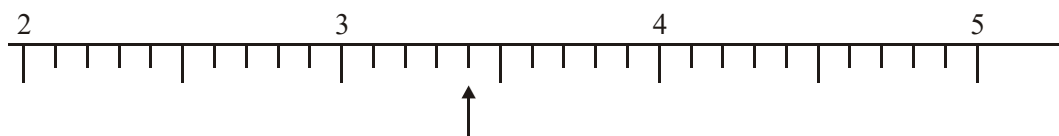
1.



- (a) Write down the number marked with an arrow.

.....

(1)



- (b) Write down the number marked with an arrow.

.....

(1)



- (c) Find the number 430 on the number line.
Mark it with an arrow (↑).

(1)



- (d) Find the number 3.7 on the number line.
Mark it with an arrow (↑).

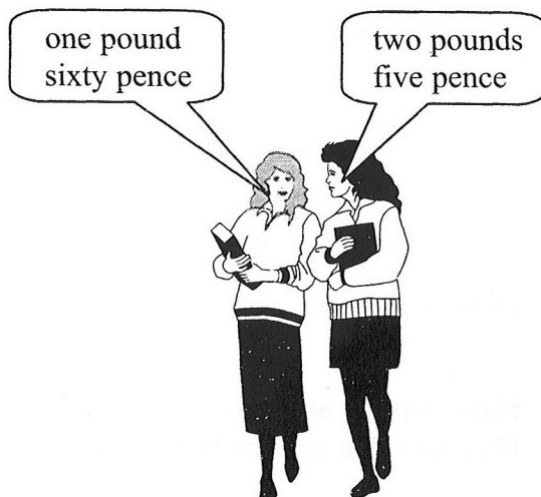
(1)

(Total 4 marks)

2. Natasha had one pound sixty pence.

Her friend, Kelly, had two pounds five pence.

Write down, in figures, how much money Kelly and Natasha each had.



Natasha £.....

Kelly £.....

(Total 2 marks)

3. Write these numbers in order of size.
Start with the smallest number.

(i) 75, 56, 37, 9, 59

.....

(ii) 0.56, 0.067, 0.6, 0.65, 0.605

.....

(iii) $5, -6, -10, 2, -4$

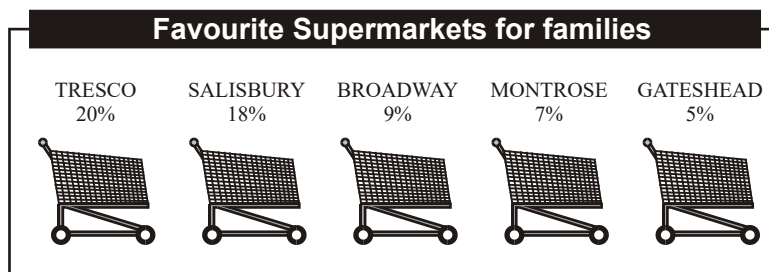
.....

(iv) $\frac{1}{2}, \frac{2}{3}, \frac{2}{5}, \frac{3}{4}$

.....

(Total 5 marks)

4. In a survey, some families were asked to name their favourite supermarket. Some of the results are shown in the diagram.



- (a) Write as a **fraction** the percentage whose favourite supermarket was Montrose.

.....

(1)

- (b) Write as a **decimal** the percentage whose favourite supermarket was Salisbury.

.....

(1)

200 families took part in the survey.

- (c) Work out the number of families whose favourite supermarket was Tresco.

.....

(2)

(Total 4 marks)

5. Write these numbers in order of size.
Start with the smallest number.

- (i) 0.56, 0.067, 0.6, 0.65, 0.605

.....

- (ii) 5, -6, -10, 2, -4

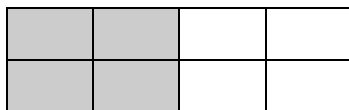
.....

- (iii) $\frac{1}{2}$, $\frac{2}{3}$, $\frac{2}{5}$, $\frac{3}{4}$

.....

(Total 4 marks)

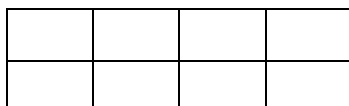
6.



- (a) (i) What fraction of this shape is shaded? Write your fraction in its simplest form.

.....

- (ii) Shade $\frac{1}{4}$ of this shape.



(3)

9 is the number that is half way between 6 and 12

69..... 12

- (b) Work out the number that is half way between

(i) 20 60

(ii) 100 000 200 000

(iii) 6.5 6.6

(iv) $\frac{1}{4}$ $\frac{1}{2}$

(4)

- (c) Find the point on the line AB that is **exactly** $\frac{1}{3}$ of the way along the line **from** A .

Mark this point with a cross (\times).



(1)

(Total 8 marks)

7. Nick takes 26 boxes out of his van.
The weight of each box is 32.9 kg.

Work out the **total** weight of the 26 boxes.

..... kg
(Total 3 marks)

8. Write these numbers in order of size.

Start with the smallest number.

- (a) 76, 103, 13, 130, 67

..... (1)

- (b) -3, 5, 0, -7, -1

..... (1)

- (c) 0.72, 0.7, 0.072, 0.07, 0.702

..... (1)

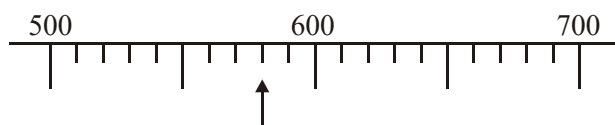
(d) 70% , $\frac{3}{4}$, 0.6 , $\frac{2}{3}$

.....

(2)

(Total 5 marks)

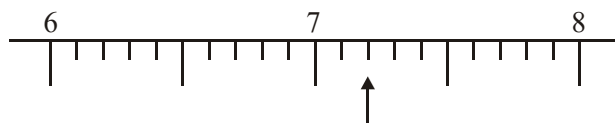
9.



- (a) Write down the number marked with an arrow.

.....

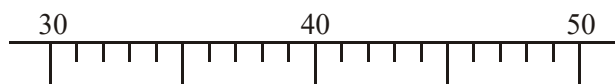
(1)



- (b) Write down the number marked with an arrow.

.....

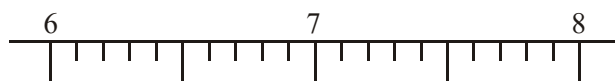
(1)



- (c) Find the number 48 on the number line

(Mark it with an arrow (↑)).

(1)



- (d) Find the number 6.7 on the number line.
Mark it with arrow (\uparrow).

(1)

(Total 4 marks)

10. The cost of a calculator is £6.79
Work out the cost of 28 of these calculators.

£.....

(Total 3 marks)

11. A newspaper reporter did a survey.
He asked people what was their favourite leisure activity.

The table gives some information about the answers he got.

Favourite leisure activity	Percentage
Home Improvements	22%
Shopping	14%
Gardening	9%
All others	

- (a) Complete the table.

(1)

- (b) Write 9% as a decimal.

.....

(1)

400 people were asked in the survey.

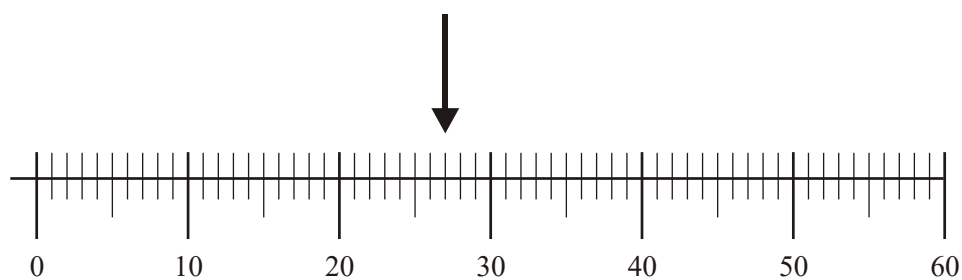
- (c) How many people said their favourite leisure activity was gardening?

.....

(2)

(Total 4 marks)

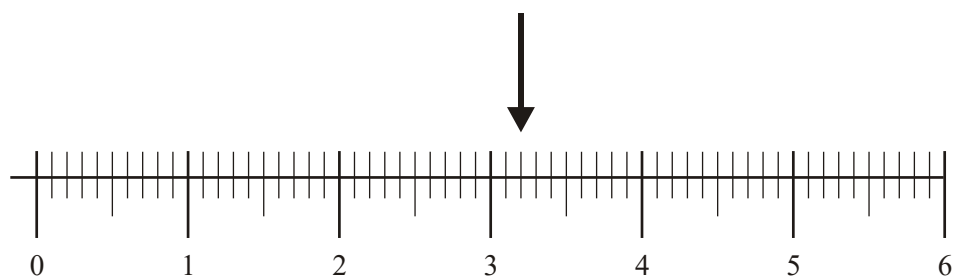
12.



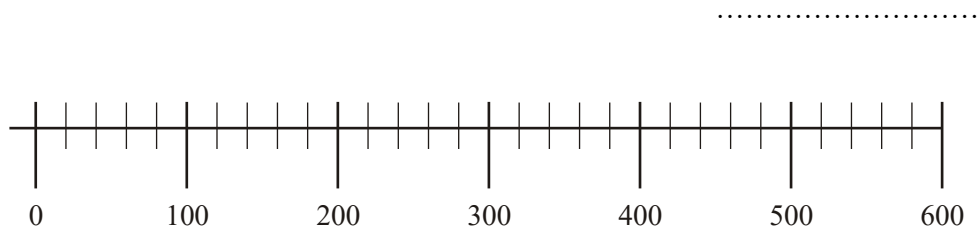
- (a) Write down the number marked by the arrow.

.....

(1)

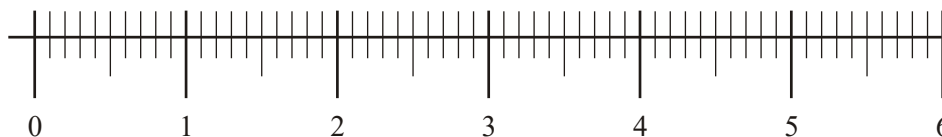


- (b) Write down the number marked by the arrow.



(1)

- (c) Find the number 460 on the number line.
Mark it with an arrow (\downarrow).



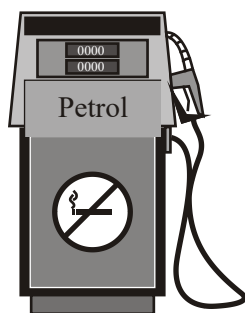
(1)

- (d) Find the number 2.8 on the number line.
Mark it with an arrow (\downarrow).

(1)

(Total 4 marks)

13. The cost of 20 litres of petrol is £18
Work out the cost of 1 litre of petrol.



.....

(Total 3 marks)

14. (a) Write $\frac{1}{10}$

(i) as a decimal,

.....cm

(ii) as a percentage.

.....cm

(2)

(b) Shade $\frac{3}{5}$ of this shape.

(1)

(Total 3 marks)

15. The cost of a cinema ticket for an adult is £5.50
The cost of the cinema tickets for 13 adults and 9 children is £103

Work out the cost of a cinema ticket for a child.

£

(Total 4 marks)

16. Work out an estimate for the value of 5.1×98

.....
(Total 2 marks)

17. The table shows the percentage of each of the materials used in making a car tyre.

Material	Percentage
Natural rubber	12%
Synthetic polymers	25%
Carbon black	26%
Oil	17%
Fabric	4%
Wire	10%
Other	6%

- (a) Write down the name of the material with the largest percentage.

.....
(1)

- (b) Write 10% as a decimal.

.....
(1)

- (c) Write 4% as a decimal.

.....

(1)

- (d) Write 26% as a fraction.
Give your answer in its simplest form.

.....

(2)

(Total 5 marks)

18.

Waxworks
Adult ticket: £8.50
Child ticket: £4.50

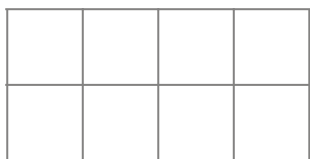
Mr and Mrs Jones take their three children to the Waxworks.
Mrs Jones pays for 2 adult tickets and 3 child tickets.
She pays with a £50 note.

How much change should she receive from £50?

£

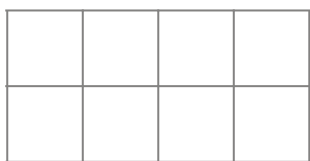
(Total 3 marks)

19. (a) Shade $\frac{3}{4}$ of this shape.



(1)

- (b) Shade 0.25 of this shape.



(1)

- (c) Change 0.3 into a fraction.

.....

(1)

- (d) Change 0.7 into a percentage.

..... %

(1)

- (e) Work out $\frac{3}{4}$ of £36

£

(2)

(Total 6 marks)

20. Here is part of a bus timetable.

Bus Station	07 00	07 30	08 00
Castle Street	07 10	07 40	08 15
High Street	07 25	07 55	08 25
Station Road	07 37	08 07	08 37
Church Street	07 50	08 20	08 50
Wharf Inn	07 55	08 25	08 55

A bus leaves the Bus Station at 07 00

(a) At what time should the 07 00 bus arrive at Station Road?

.....

(1)

Jill arrives at High Street at 07 45
She wants to catch a bus to Wharf Inn.

(b) How long should she have to wait for the next bus?

..... minutes

(1)

A bus leaves Station Road at 08 37

(c) How long should this bus take to travel from Station Road to Wharf Inn?

..... minutes

(1)

(Total 3 marks)

21.

<i>Joe's Cafe</i>	
Prices	
Cup of tea	70p
Cup of coffee	85p
Can of cola	75p
Roll	£1.60
Sandwich	£1.35

Jonathan buys a can of cola and a roll.

- (a) Work out the total cost.

£

(1)

Sachin buys a cup of tea, a cup of coffee and 2 sandwiches.

- (b) Work out the total cost.

£

(2)

Kim buys a can of cola, a cup of coffee and a sandwich.
She pays with a £5 note.

- (c) Work out how much change she should get.

£

(3)

(Total 6 marks)

22. (a) Write these numbers in order of size.
Start with the smallest number.

17 6 168 24

.....

(1)

- (b) Write these numbers in order of size.
Start with the smallest number.

1.8 3.71 0.5 12.4

.....

(1)

(Total 2 marks)

23. The total cost of these 2 pens is 60p.



Work out the total cost of 5 of these pens.
Give your answer in pounds.

£
(Total 3 marks)

24. (a) Write 92% as a decimal.

.....
(1)

- (b) Write 3% as a fraction.

.....
(1)

- (c) Work out 5% of 400 grams.

..... grams

(2)

(Total 4 marks)

25. Work out $\pounds 1.70 \times 5$

£

(Total 1 mark)

26. (a) Work out the square of 3

.....

(1)

- (b) Work out the value of 2^6

.....

(1)

- (c) Write 80% as a fraction.
Give your answer in its simplest form.

.....

(2)

- (d) Work out 10% of £320

£

(2)

- (e) Write these numbers in order of size.
Start with the smallest number.

$\frac{2}{5}$ 45% 0.35 $\frac{3}{8}$

.....

(2)

(Total 8 marks)

27.

Gift shop	
<u>Price list</u>	
Key ring	£3.20
Hat	£3.99
Pencil case	£2.70
Ruler	45p
Pen	60p
Pencil	

Keith buys 3 pens.

- (a) Work out the total cost.

£

(2)

Simon buys a pencil case, a ruler and a pen.
He pays with a £5 note.

- (b) Work out how much change he should get.

£

(3)

The gift shop also sells pencils.

The price of a pencil is $\frac{2}{3}$ of the price of a pen.

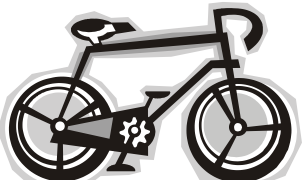
(c) Work out the price of a pencil.

..... p

(2)

(Total 7 marks)

28. Complete this bill.

Michael's Cycle Repairs			
			
Description	Number	Cost of each item	Total
Brake blocks	4	£4.12	£16.48
Brake cables	2	£5.68	£
Pedals	2	£	£45.98
Labour charge $1\frac{1}{2}$ hours at £12.00 an hour			£
Total			£

(Total 4 marks)

29.

Cinema tickets	
Adult ticket:	£8.65
Child ticket:	£4.90
Senior ticket:	£5.85

Tony buys one child ticket and one senior ticket.

- (a) Work out the total cost.

£

(1)

Stephanie buys adult tickets only.

The total cost is £60.55

- (b) How many adult tickets does she buy?

.....

(2)

Kamala buys one adult ticket and two child tickets.
She pays with a £20 note.

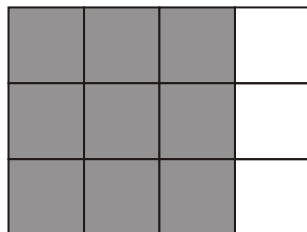
- (c) How much change should she get?

£

(3)

(Total 6 marks)

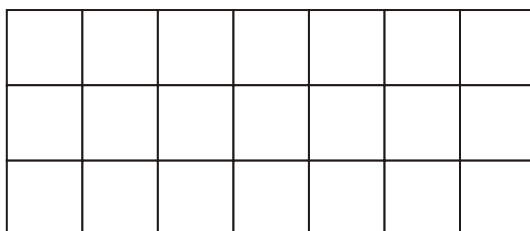
30. (a) Write down the fraction of this shape that is shaded.
Give your fraction in its simplest form.



.....

(2)

- (b) Shade $\frac{2}{7}$ of this shape.



(1)

- (c) Write $\frac{3}{10}$ as a decimal.

.....

(1)

- (d) Write 0.39 as a fraction.

.....

(1)

(Total 5 marks)

- 31.** Write these five numbers in order of size.
Start with the smallest number.

2.5 0.5 0.52 2.2 0.25

.....

(Total 2 marks)

- 32.** (a) Find the positive square root of 2.56.

.....

(1)

- (b) Write these numbers in order of size.
Start with the smallest number.

$$0.4 \quad \frac{7}{15} \quad 35\% \quad \frac{3}{7}$$

.....

(2)

(Total 3 marks)

33. (a) Write 0.45 as a percentage.

.....%

(1)

- (b) Write $\frac{3}{4}$ as a percentage.

.....%

(1)

- (c) Write 30% as a fraction in its simplest form.

.....

(2)

(Total 4 marks)

34. (a) Work out

$$41.3 \times 100$$

.....

(1)

(b) Work out

$$0.4 \times 0.6$$

.....

(1)

(c) Work out

$$5.2 - 1.37$$

.....

(1)

(Total 3 marks)

35. (a) Write $\frac{1}{5}$ as a percentage.

..... %

(1)

(b) Write 0.7 as a percentage.

..... %

(1)

(Total 2 marks)

36. Fatima bought 48 teddy bears at £9.55 each.



Work out the total amount she paid.

£
(Total 3 marks)

37. Write these numbers in order of size.
Start with the smallest number.

(i) 0.56, 0.067, 0.6, 0.65, 0.605

.....

(ii) 5, -6, -10, 2, -4

.....

(iii) $\frac{1}{2}$, $\frac{2}{3}$, $\frac{2}{5}$, $\frac{3}{4}$

.....

(Total 4 marks)

38. Here are six numbers

$$75\% \quad \frac{8}{10} \quad \frac{9}{12} \quad 0.75 \quad 66\frac{2}{3}\% \quad \frac{6}{8}$$

Two of the numbers are **not** equal to $\frac{3}{4}$

Draw a circle around each of the two numbers.

(Total 2 marks)

39. (a) Write 0.38 as a percentage.

..... %

(1)

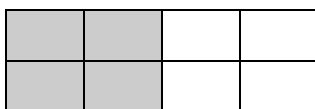
- (b) Write $\frac{3}{10}$ as a percentage.

..... %

(1)

(Total 2 marks)

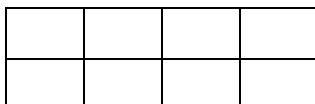
40.



- (a) (i) What fraction of this shape is shaded?
Write your fraction in its simplest form.

.....

- (ii) Shade $\frac{1}{4}$ of this shape.



(3)

6**9**..... 12

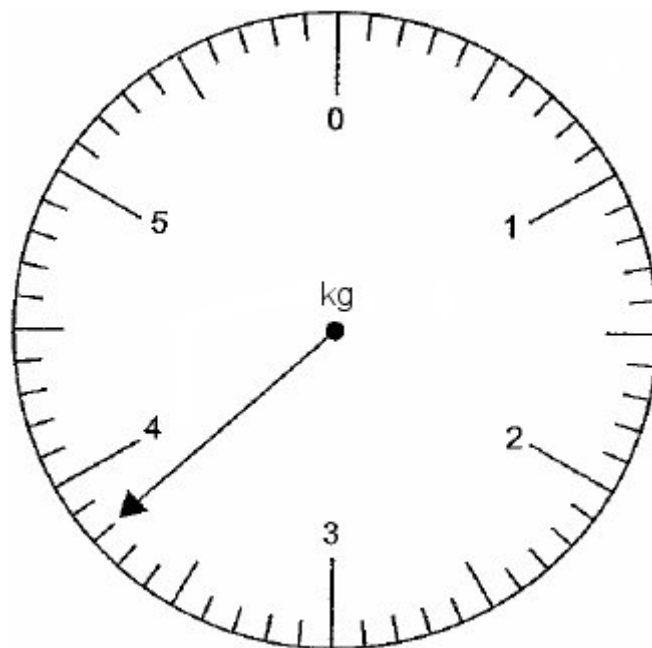
- (c) Write 70% as a decimal.

.....

(1)

(Total 3 marks)

43.



- (i) Write down the reading shown on the scale.

..... kg

- (ii) Change 5.7 kg to grams.

..... g

(Total 2 marks)

44. (a) Write 0.37 as a fraction.

.....

(1)

- (b) Write down **all** the factors of 21

.....

(2)

(Total 3 marks)

45. (a) Write 0.37 as a percentage.

..... %

(1)

- (b) Write $\frac{1}{4}$ as a percentage.

..... %

(1)

- (c) Write 19% as a fraction.

.....

(1)

- (d) Write 40 as a fraction of 140
Give your fraction in its simplest form.

.....

(2)

(Total 5 marks)

46. Write these numbers in order of size.
Start with the smallest number.

- (a) 76, 103, 13, 130, 67

.....

(1)

- (b) -3, 5, 0, -7, -1

.....

(1)

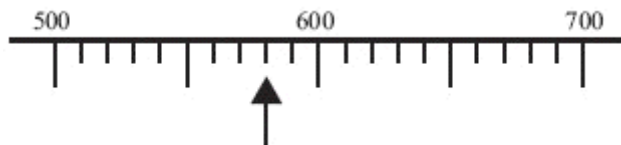
- (c) 70%, $\frac{3}{4}$, 0.6, $\frac{2}{3}$

.....

(2)

(Total 4 marks)

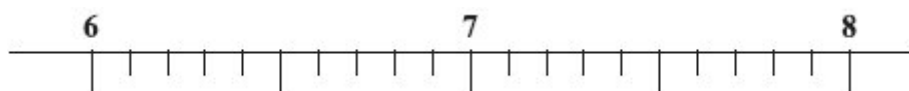
47.



- (a) Write down the number marked with an arrow.

.....

(1)



- (b) Find the number 6.7 on the number line.

Mark it with an arrow (\uparrow).

.....

(1)

(Total 2 marks)

48. (a) Work out $\frac{4}{5}$ of 30

.....

(2)

- (b) Write $\frac{4}{5}$ as a decimal.

.....
(2)
(Total 4 marks)

49. (a) Write 0.85 as a percentage.

..... %
(1)

- (b) Write $\frac{1}{10}$ as a percentage.

..... %
(1)

- (c) Write 60% as a decimal.

.....
(1)

(Total 3 marks)

50. Write these numbers in order of size.~
Start with the smallest number.

$$\frac{1}{3} \quad \frac{3}{8} \quad 0.3 \times 35\%$$

.....

(Total 2 marks)

51. (a) (i) Write $\frac{1}{4}$ as a percentage.

.....%

- (ii) Write 0.8 as a percentage.

.....%

(2)

- (b) Write 76% as a decimal.

.....

(1)

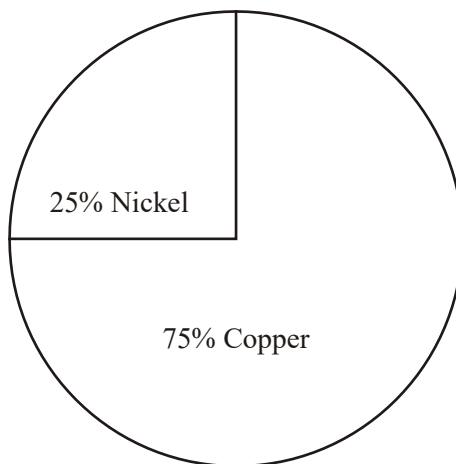
- (c) Write 45% as a fraction.
Give your answer in its simplest form.

.....

(2)

(Total 5 marks)

52.



The weight of a coin is 25% nickel and 75% copper,

- (i) Write 25% as a decimal.

.....

- (ii) Write 25% as a fraction.
Give your answer in its simplest form.

.....

(Total 2 marks)

53. Write these numbers in order of size.
Start with the smallest number.

- (a) -6, 2, -1, 0, -3

.....

(1)

- (b) 0.6, 0.64, 0.06, 0.604, 0.064

.....

(1)

(Total 2 marks)

54. (a) Use your calculator to work out the value of $\sqrt{976} - 24.6$

Write down all the figures on your calculator display.

.....

(2)

- (b) Write your answer to part (a) correct to 1 significant figure.

.....

(1)

(Total 3 marks)

55. Chris buys

1 map costing £4.50

1 whistle costing £1.35

2 bars of chocolate costing £0.55 **each**

He pays with a £10 note.

Work out how much change he should get.

£

(Total 3 marks)

56. (a) Write 0.15 as a percentage.

..... %

(1)

- (b) Write 35% as a fraction.
Give your answer in its simplest form.

.....

(2)

(Total 3 marks)

57. Write these numbers in order of size.
Start with the smallest number.

0.73

0.37

0.07

0.3

0.307

.....

(Total 1 mark)

58. Use the information that

$$56 \times 29 = 1624$$

to find the value of 56×0.29

.....

(Total 1 mark)

59. Work out an estimate for $\frac{29.8 \times 4.1}{0.21}$

.....

(Total 3 marks)

60. Martin bought a calculator for £5.75 and a pencil case for £1.45

Work out his total bill.

£6.10

A

£6.20

B

£6.30

C

£6.15

D

£7.20

E

(Total 1 mark)

61. Sam buys a bus ticket for £1.25 and a train ticket for £14.80
 She pays with a £20 note.

How much change should she receive?

£4.95

A

£16.05

B

£4.05

C

£3.95

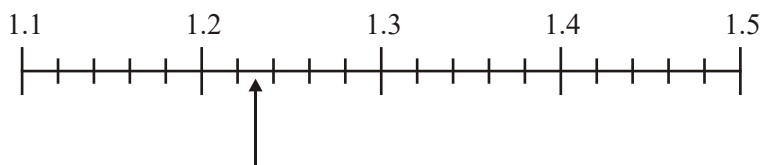
D

£18.75

E

(Total 1 mark)

62. Look at the number line below.



What is the number indicated by the arrow?

1.2
□
A

1.21
□
B

1.22
□
C

1.23
□
D

1.25
□
E

(Total 1 mark)

63. Here is a list on numbers.

1.232

1.33

1.23

1.323

1.22

The numbers are going to be written in order, smallest number first.
Which of these numbers would be the 4th in the list?

1.232
□
A

1.33
□
B

1.23
□
C

1.323
□
D

1.22
□
E

(Total 1 mark)

64. A train leaves Manchester at 07 45 and arrives in London at 10 20.
How long does it take the train to make the journey?

2 hours
25 minutes
□
A

2 hours
35 minutes
□
B

3 hours
15 minutes
□
C

3 hours
25 minutes
□
D

3 hours
35 minutes
□
E

(Total 1 mark)

65. Here is a list of decimal numbers.

2.3 2.41 2.39 2.389 2.4

Robert is going to write the numbers in order of size.
He writes down the smallest number.

Which number should he write down next?

2.3	2.41	2.39	2.389	2.4
A	B	C	D	E

(Total 1 mark)

66. Magazines cost £2.45 each.
Farah buys 3 magazines.
She pays with a £10 note.

Work out how much change she should get.

£

(Total 3 marks)

67. What is the number 0.357 when written as a fraction?

$3\frac{57}{100}$	$\frac{357}{10}$	$\frac{357}{100}$	$\frac{357}{1000}$	$\frac{357}{10000}$
A	B	C	D	E

(Total 1 mark)

68.

CALCULATORS

Basic £3

Scientific £5

Julie spends £25 on scientific calculators.

In total she buys 12 calculators for £46

How many basic calculators does she buy?

8

5

6

7

4

A**B****C****D****E****(Total 1 mark)**

69. Grace buys

1 book for £3.95

1 magazine for £1.80

2 pens for 40p **each**.



She pays with a £10 note.

How much change should she get?

£

(Total 3 marks)

70. (a) Write these numbers in order of size.

Start with the smallest number.

2501 5201 5210 1250

.....

(1)


- (b) Write these numbers in order of size.
Start with the smallest number.

0.705 0.75 0.7

.....

(1)
(Total 2 mark)

71. Complete this bill.

		Ben's DIY shop	
Description	Number	Cost of each item	Total
Tins of paint	2	£14.50	£
Paint brushes	3	£5.00	£15.00
Rolls of wallpaper	4	£	£24.00
Total cost			£

(Total 3 marks)

72. Josh buys 40 litres of milk.
The total cost is £33.20

Work out the cost of 1 litre of the milk.

.....
(Total 3 marks)

73. Bethony calls her friend on her mobile phone.

She starts the call at 8.11 pm.
She ends the call at 8.57 pm.

The call costs 12p for each minute.

Work out the **total** cost of her call.
Give your answer in pounds (£).

£
(Total 4 marks)

74. A packet of popcorn costs £1.99
Lisa buys 2 packets of popcorn.
She pays with a £5 note.

Work out how much change Lisa should get.

£
(Total 2 marks)

75. The cost of 30 litres of petrol is £28.80
Work out the cost of 1 litre of this petrol.

.....
(Total 3 marks)

76. Ted buys a packet of sweets for £2.95 and a can of cola for 45p.

What is the total cost?

£2.40

£3.35

£3.40

£2.50

£3.30

A

B

C

D

E

(Total 1 mark)

77. Which number is the smallest?

7.128

7.4

7.32

7.18

7.09

A

B

C

D

E

(Total 1 mark)

78. Oranges cost 24p each.

Raja buys 5 of the oranges.

He pays with a £5 note.

How much change should he get?

£3.80

£4.20

£1.20

£2.80

£4.76

A

B

C

D

E

(Total 1 mark)

79. Here is a list of numbers.

$$0.4 \quad \frac{1}{3} \quad \frac{1}{4} \quad \frac{1}{2} \quad 0.3$$

Sally is going to write the numbers in order of size.
She writes the smallest number first.

Which number should she write next?

$$0.4$$

$$\frac{1}{3}$$

$$\frac{1}{4}$$

$$\frac{1}{2}$$

$$0.3$$

A

B

C

D

E

(Total 1 mark)

80. (a) Change $\frac{1}{4}$ to a decimal.

.....

(1)

- (b) Find 10% of £50

£

(1)

(Total 2 marks)

81. Which fraction is equal to 1.17?

$$\frac{117}{1}$$

$$\frac{117}{10}$$

$$\frac{117}{100}$$

$$\frac{117}{1000}$$

$$\frac{117}{10000}$$

A

B

C

D

E

(Total 1 mark)

- 82.** Bill buys a cup of coffee and a sandwich.

The cup of coffee costs 95p.

The sandwich costs £1.49

What is the total cost?

£96.49

£2.49

£2.54

£2.44

£10.99

A

B

C

D

E

(Total 1 mark)

- 83.** Here is a list of numbers.

1.2

1.02

1.22

2.1

2.01

What is the smallest number in the list?

1.2

1.02

1.22

2.1

2.01

A

B

C

D

E

(Total 1 mark)

- 84.** (a) Write 25.2 to the nearest whole number.

.....

(1)

- (b) Write $\frac{1}{5}$ as a decimal.

.....

(1)

- (c) Write 27% as a fraction.

.....
(1)
(Total 3 marks)

85. (a) Write $\frac{9}{10}$ as a decimal.

.....
(1)

- (b) Write $\frac{3}{4}$ as a percentage.

..... %
(1)

- (c) Write 23% as a fraction.

.....
(1)

- (d) Work out $\frac{1}{5}$ of 50

.....
(1)
(Total 4 marks)

01. (a) 46

Bl cao

1

- (b) 3.4

Bl oe

1

(c) Arrow at 430 1
B1 allow \pm half graduation

(d) Arrow at 3.7 1
B1 allow \pm half graduation
Accept indications other than arrows as long as they are clear

[4]

02. 1.60
 2.05 2
B1) Condone
B1) reversal

[2]

03. (i) 9, 37, 56, 59, 75 5
B1 cao

(ii) 0.067, 0.56, 0.6, 0.605, 0.65
B1 cao Ignore trailing zeros

(iii) -10, -6, -4, 2, 5
B1 cao

(iv) $\frac{2}{5}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}$
B2 for all 4 correct
(B1 for any 3 in correct order)
SC B1 for all 4 in reverse order (applies to(iv) only)

[5]

04. (a) $\frac{7}{100}$ 1
B1 cao accept 0.07

(b) 0.18 1
B1 cao

- (c) 40 2
 20 in 100 oe
M1 for sight of 20 in 100 or 20×2
A1 cao

[4]

05. (i) 0.067, 0.56, 0.6, 0.605, 0.65 1
B1 cao Ignore trailing zeros
- (ii) -10, -6, -4, 2, 5 1
B1 cao
- (iii) $\frac{2}{5}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}$ 2
B2 all four correct
(B1 any three in correct order)
SC: B1 all 4 in reverse order

[4]

06. (a) (i) $\frac{1}{2}$ 2
B2 for $\frac{1}{2}$ accept half
(B1 for an equivalent unsimplified fraction eg $\frac{4}{8}$ or 50% or 0.5)
- (ii) 2 rectangles shaded 1
B1 for correct shading (any 2 rectangles)
- (b) (i) 40 4
B1 for 40 cao
- (ii) 150 000
B1 for 150 000 cao (accept 150,000 not 150.000)
- (iii) 6.55
B1 for 6.55 cao not $6.5^{\frac{1}{2}}$
- (iv) $\frac{3}{8}$
B1 for $\frac{3}{8}$ oe accept 0.375

- (c) Cross 3cm from A 1
B1 mark a cross 3 cm (± 2 mm) from A

[8]

07. 855.4 3
 1974
 6580
 8554

M1 for complete correct method with relative place value correct, condone 1 error in multiplication.

A2 cao

(A1 for digits 8554 seen or A1 ft for "855.4" dependent on one arithmetic error only)

[3]

08. (a) 13, 67, 76, 103, 130 5
B1 cao

- (b) $-7, -3, -1, 0.5$
B1 cao

- (c) 0.07, 0.072, 0.7, 0.702, 0.72
B1 cao

- (d) $0.6, \frac{2}{3}, 70\%, \frac{3}{4}$
B2 (B1 for any 3 in correct order)

[5]

09. (a) 580 1
B1 for 580 (± 2) could be written on line

- (b) 7.2 1
B1 for 7.2 ± 0.02 could be written on line

- (c) Arrow at 48 1
B1 allow \pm half graduation

(d) Arrow at 6.7

1

*BI allow \pm half graduation***[4]**

10. 190.12

3

$$\begin{array}{r}
 679 \\
 28 \\
 \hline
 5432 \\
 13580 \\
 \hline
 19012
 \end{array}
 \quad \text{or} \quad
 \begin{array}{r}
 28 \\
 679 \\
 \hline
 252 \\
 1960 \\
 16800 \\
 \hline
 19012
 \end{array}$$

or

	6	7	9
1	1	1	1
	2	4	8
9	4	5	7
	8	6	2
	0	1	2

*M1 for an attempt to multiply the units and tens, or correct partitioning**M1 complete correct method (condone one arithmetic error)**A1 for 190.12 cao**OR**M1 for putting the numbers in a grid**M1 for multiplying out and addition (condone one error)**A1 answer shown with point**OR**M1 for correct partitioning**M1 679×20 and 679×8 calculated oe (condone one error)**A1 cao***[3]**

11. (a) 55(%)

1

BI cao

(b) 0.09

1

BI cao

- (c) $9 \div 100 \times 400$
36 2
M1 for $9 \div 100 \times 400$ oe eg 4×9
A1 cao [4]

12. (a) 27 1
B1 ignore any units
- (b) 3.2 1
B1 ignore any units
- (c) 460 marked 1
B1 for arrow between 455 and 465 inclusive
- (d) 2.8 marked 1
B1 for arrow between 2.75 and 2.85 inclusive [4]

13. $18 \div 20$
 $= 0.9$
90p or £0.90 3
M1 for $18 \div 20$ or valid partitioning method, allow one arithmetic error.
A1 for sight of 0.9 or 90 or 0.90
B1 ft for their cost of one litre correctly written as money
(SC B1 for £1.11) [3]

14. (a) (i) 0.1 1
B1 cao
- (ii) 10% 1
B1 cao
- (b) 12 squares shaded 1
B1 for any 12 squares shaded [3]

15. $13 \times 5.5(0)$ or $71.5(0)$ 4
M1 for $13 \times 5.5(0)$ or $71.5(0)$ seen
- $103 - 71.5(0)$ or $31.5(0)$
M1 for $103 - "71.5(0)"$ or $31.5(0)$ seen
- $31.5(0) \div 9$
M1 for " $31.5(0)$ " $\div 9$
A1 for 3.50 Condone 3.5
- [4]**
-
16. 5×500
 $= 500$ 2
B2 for 490 or 500 or 510
(B1 for either 5 or 5.0 or 100 seen)
- [2]**
-
17. (a) Carbon black 1
B1 accept 'black carbon' accept 26%
- (b) $0.1(0)$ 1
B1 cao
- (c) 0.04 1
B1 cao
- (d) $\frac{26}{100}$
 $\frac{13}{50}$ 2
M1 for $\frac{26}{100}$
A1 cao
- [5]**

18. $2 \times 8.50 = 17.00$
 $3 \times 4.50 = 13.50$
 Total = 30.50
 $50.00 - 30.50$
 $= 19.5(0) (p)$

3

M1 for adding 5 correct values
or $2 \times 8.50 + 3 \times 4.50$ (ignore units)
or 30.5(0) or 3050 seen
M1 dep for 50 – “30.50” (ignore units)
*(OR M1 for adding at least 1 adult ticket and at least 1 child ticket **and** subtracting from 50)*
A1 cao
SC: B1 for 24 or 37 or 2400 or 3700 seen

[3]

19. (a) 6 shaded

1

B1 cao

(b) 2 shaded

1

B1 cao

(c) $3/10$

1

B1 oe

(d) 70%

1

B1 cao

(e) $36 \div 4 \times 3 = 27$

2

M1 for $36 \div 4$ or 36×3 or sight of 9 or 108
A1 for 27 cao

[6]

20. (a)

1

B1 accept 7:37 or 7:37 am or 7.37 or 7.37 am or 7 37

(b) 10 mins

1

B1 cao

(c) 18 mins

1

*B1 cao***[3]**

21. (a) $75 + 160$ 1
 $= £2.35$
BI cao
- (b) $70 + 85 + 2 \times 135$ 2
 $= £4.25$
M1 $70 + 85 + 2 \times \text{digits } 135$ or $0.70 + 0.85 + 2 \text{ digits } 135$
AI cao
- (c) $75 + 85 + 135 = 295$ 3
 $500 - '295'$
 $= £2.05$
BI for 295 or 2.95
M1 $500 - "295"$ or $5.00 - "2.95"$
AI cao

[6]

22. (a) 6, 17, 24, 168 1
BI for 6, 17, 24, 168
- (b) 0.5, 1.8, 3.71, 12.4 1
BI for 0.5, 1.8, 3.71, 12.4

[2]

23. $\frac{60}{2} \times 5 = 1.50$ 3
M2 for $\frac{60}{2} \times 5$ oe or 150 seen
M1 for $\frac{60}{2}$ or 30 seen or 60×5 or 300 seen or 0.6×5 or $3(.00)$ seen
AI for 1.5(0)(p)
Accept 150p with £ crossed out

[3]

24.	(a) 0.92	<i>B1 for 0.92 cao</i>	1	[4]
	(b) $\frac{3}{100}$	<i>B1 for $\frac{3}{100}$ cao</i>	1	
	(c) $\frac{5}{100} \times 400$ 20	<i>M1 for $\frac{5}{100} \times 400$ oe</i> <i>A1 for 20 cao</i>	2	
25.	$\pounds 1.70 \times 5$ 8.50	<i>B1 for 8.50 or £8.50p, but NOT for 8.5 or 8.05</i>	1	[1]
26.	(a) 9	<i>B1 cao</i>	1	
	(b) 64	<i>B1 cao</i>	1	
	(c) $\frac{4}{5}$	<i>B2 for 4/5</i> <i>(B1 for 80/100 oe or 0.8)</i>	2	
	(d) £32	<i>M1 for $10/100 \times 320$, or $320 \div 10$</i> <i>A1 cao</i> <i>NB: £320-£32=£288 or £320+£32=£352 can be awarded M1</i> <i>A1, but £288 or £352 without working award B1</i>	2	

- (e) 0.35, $\frac{3}{8}$
 $\frac{2}{5}$, 45%

2

B2 all correct, or for equivalents in order: 0.35, 0.375, 0.4, 0.45, or for a mixture of equivalents as long as the order is correct. (B1 one error of misplacing numbers, or correct conversion to decimals or %, or correct order but reversed).

NB: accept 0.38 or 0.37 instead of 0.375 for B1, but not B2

[8]

27. (a) 3×60
 1.80

2

M1 for 3×60 or $60 + 60 + 60$ or 3×45 or 180 seen

A1 (accept 1.8)

SCB1 for £1.35

- (b) $2.70 + 0.45 + 0.60 = 3.75$
 $5 - 3.75 = 1.25$

3

M1 for $2.70 + 0.45 + 0.60$ or 3.75 seen (note: working could be in pence)

M1(dep) for $5 - "3.75"$

A1 cao

SCB2 for 125

- (c) $60 \div 3 = 20$
 $20 \times 2 = 40$

2

M1 for $60 \div 3$ or 60×2 or sight of 20 or 120

A1 cao

[7]

28. 11.36

B1 cao

22.99

B1 cao

18.00

B1 cao (allow 18)

91.82

4

B1 for 91.82 or f.t. from adding at least 3 item totals ($62.46 + "11.36" + "18.00"$)

[4]

29. (a)
$$\begin{array}{r} 5.85 + 4.90 \\ 10.75 \end{array}$$
 1
B1 for 10.75 cao

(b)
$$\begin{array}{r} 60.55 \div 8.65 \\ 7 \end{array}$$
 2
M1 for $60.55 \div 8.65$ or $8.65 \times 7 = 60.55$ or for at least 4 repeated additions or subtractions of 8.65
A1 for 7 cao

(c)
$$\begin{array}{r} 8.65 + (4.90 + 4.90) \\ 20 - 18.45 \\ 1.55 \end{array}$$
 3
M1 for $8.65 + (4.90 + 4.90)$
M1 (dep) for $20 - '18.45'$
A1 for 1.55 cao
SC: award B1 for sight of 18.45 or 6.45 or 10.20 award B2 for 155

[6]

30. (a)
$$\frac{9}{12}$$

$$\frac{3}{4}$$
 2
B2 for $\frac{3}{4}$ cao (B1 for $\frac{9}{12}$ seen)

(b) shading 1
B1 for 6 squares (only) shaded

(c) 0.3 1
B1 for 0.3 oe

(d)
$$\frac{39}{100}$$
 1
B1 for $\frac{39}{100}$ oe as a fraction

[5]

31. 0.25, 0.5, 0.52, 2.2, 2.5 2
B2 (B1 wrong way round OR B1 4 in correct position)
[2]
32. (a) 1.6 1
B1 cao
- (b) 35%, 0.4, $\frac{3}{7}$, $\frac{7}{15}$ 2
 0.4 0.466 0.35 0.429
B2 for all correct positions
(B1 for one incorrectly placed)
[SC: B1 for correct reverse order]
[3]
33. (a) 45 4
B1 cao
- (b) 75
B1 cao
- (c) $\frac{3}{10}$
 $\frac{30}{100}$
M1 for $30 \div 100$ OR equivalent fraction
A1 cao
[SC: $3 \div 10 = M1, A0$]
[4]
34. (a) 4130 1
B1
- (b) 0.24 1
B1
- (c) 3.83 1
B1
[3]

35. (a) 20 1
BI
- (b) 70 1
BI
- [2]
-
36. 458.40 3
- | | |
|--------------|--------------|
| 955 or 48 | 48 |
| <u>48</u> | <u>955</u> |
| 7640 | 240 |
| <u>38200</u> | 2400 |
| 45840 | <u>43200</u> |
| | 45840 |
- M1 for complete correct method
 (condone one **computational** error)
 A2 for 458.40 cao
 (A1 for 4584 or ft if M1 awarded)*
- [3]
-
37. (i) 0.067, 0.56, 0.6, 0.605, 0.65
BI cao
- (ii) -10, -6, -4, 2, 5
BI cao
- (iii) $\frac{2}{5}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}$ 4
- B2 for all 4 correct
 (B1 for any 3 in correct order)
 SC: B1 for all 4 in reverse order*
- [4]
-
38. $\frac{8}{10}$ and $66\frac{2}{3}\%$ 2
- B2 for $\frac{8}{10}$ and $66\frac{2}{3}$ (B1 for 1 correct).
 (-1 for each additional selection up to a max of -2)*
- [2]

39.	(a)	38		1	[2]
			<i>B1</i>		
	(b)	30		1	
			<i>B1</i>		
40.	(a)	(i)	$\frac{1}{2}$	2	[7]
			<i>B2 for ½, accept half (B1 for an equivalent unsimplified fraction eg 4/8 or 50% or 0.5)</i>		
		(ii)	2 rectangles shaded	1	
			<i>B1 for correct shading (any 2 rectangles)</i>		
	(b)	(i)	40	4	
			<i>B1 for 40 cao</i>		
		(ii)	150 000		
			<i>B1 for 150 000 cao (accept 150, 000 not 150.000)</i>		
		(iii)	6.55		
			<i>B1 for 6.55 cao (not 6.5½)</i>		
		(iv)	$\frac{3}{8}$		
		<i>B1 for $\frac{3}{8}$ oe (accept 0.375)</i>			
41.		2.77		1	[1]
			<i>B1</i>		
42.	(a)	20		1	[3]
			<i>B1</i>		
	(b)	64		1	
			<i>B1</i>		
	(c)	0.7		1	
			<i>B1 (accept 0.70)</i>		

43. (i) 3.8 2
BI
- (ii) 5700
BI
- [2]
44. (a) $\frac{37}{100}$ 1
BI
- (b) 1, 3, 7, 21 2
B2 for 4 correct factors, no extras (BI for 2 factors)
- [3]
45. (a) 37 1
BI
- (b) 25 1
BI
- (c) $\frac{19}{100}$ 1
BI
- (d) $\frac{2}{7}$ 2
M1 for $\frac{40}{140}$ oe
- [5]
46. (a) 13, 67, 76, 103, 130 1
BI cao
- (b) - 7, - 3, - 1, 0, 5 1
BI cao
- (c) 0.6, $\frac{2}{3}$, 70%, $\frac{3}{4}$ 2
B2 (BI for any 3 in correct order)
- [4]

47. (a) 580 1
B1 for 580 (± 2) could be written on line
- (b) Arrow at 6.7 1
B1 allow \pm half graduation
- [2]**
-
48. (a) $\frac{30}{5} = 6$, $6 \times 4 = 24$ 2
 24
M1 for dividing 30 by 5 or multiplying by 4
A1 cao
- (b) 4.0 divided by 5 2
 0.8(0)
M1 for $4 \div 5$ or $\frac{8}{10}$ or 80%
A1
- [4]**
-
49. (a) 85 1
B1
- (b) 10 1
B1
- (c) 0.6(0) 1
B1
- [3]**
-
50. 0.333..., 0.375, 0.3, 0.35 2
 $0.3, \frac{1}{3}, 35\%, \frac{3}{8}$
B2 correct order
(B1 just one out of place, or correct reverse order)
- [2]**

51. (a) (i) 25 2
Blcao

(ii) 80
Blcao

(b) 0.76 1
Blcao

(c) $\frac{45}{100}$
 $\frac{9}{20}$ 2
Ml for $\frac{45}{100}$
Alcao

[5]

52. (i) 0.25 2
Bl 0.25

(ii) $\frac{1}{4}$
Blcao

[2]

53. (a) -6, -3, -1, 0, 2 1
Blcao

(b) 0.06, 0.064, 0.6, 0.604, 0.64 1
Blcao

[2]

54. (a) 6.64099... 2
B2 for 6.64099...
(B1 for 31.24099...) or sight of attempt to calculate $\sqrt{976}$
- (b) 7 1
B1 ft from (a)
- [3]**
55. $4.50 + 1.35 + 2 \times 0.55 (= 6.95)$ 3
 $10.00 - \text{"6.95"}$
 $= \text{£}3.05$
M1 for $4.50 + 1.35 + 2 \times 0.55 (= 6.95)$
M1 for $10.00 - \text{"6.95"}$
A1 cao
(SC B2 for 3.60)
- [3]**
56. (a) 15 1
B1 cao
- (b) $\frac{35}{100} = \frac{7}{20}$ 2
B2 for $\frac{7}{20}$ (B1 for $\frac{35}{100}$ seen)
- [3]**
57. 0.07, 0.3, 0.307, 0.37, 0.73 1
B1 for 0.07, 0.3, 0.307, 0.37, 0.73
(accept 7, 30, 30.7, 37, 73 or 70, 300, 307, 370, 730)
58. 16.24 1
B1 cao
- [1]**

59. $\frac{30 \times 4}{0.2}$
 $= 600$

3

*M1 for 2 values rounded correctly to 1 sig fig
 M1 (indep) for a correct method to divide by a decimal*

(eg $\frac{30 \times 4 \times 10}{0.2 \times 10}$)

All correct

Sight of $\frac{120}{0.21}$, with no working, would imply that 29.8 and

4.1 have been correctly rounded to 1 sig. fig. for the award of the first M1.

*Sight of $150 \times "4.1"$ (or $"29.8" \times 20$) would imply that two of the three numbers have been correctly rounded to 1 sig. fig. **and** correct division by a decimal and so M2 could be awarded.*

[3]

60. E

[1]

61. D

[1]

62. D

[1]

63. B

[1]

64. B

[1]

65. D

[1]

66. $10 - (2.45 \times 3)$
 $10 - 7.35$

Alternative:

$10 - 2.45 = 7.55$
 $7.55 - 2.45 = 5.10$
 $5.10 - 2.45$

2.65

3

M1 for 2.45×3 oe
(for example $2.45 + 2.45 + 2.45$) or 7.35 seen
M1 (dep) for $10 - "2.45 \times 3"$ oe
A1 cao (accept 2,65)
Alternative:
M1 for $10 - 2.45$ or sight of 7.55
M1 (dep) for " 7.55 " $- 2.45 - 2.45$
A1 cao

[3]

67. D

[1]

68. D

[1]

69. $3.95 + 1.80 + 2 \times 0.40 = 6.55$

$10 - "6.55"$
 3.45

3

M1 for $3.95 + 1.80 + 2 \times 0.40$ or 6.55 seen
M1 (dep on use of two prices from list for "6.55")
for $10 - "6.55"$
A1 cao
Alternative method
M2 for $10 - 3.95 - 1.80 - 0.40 - 0.40$
(M1 for $10 -$ any two prices from original list)
A1 cao
(SC: (Only 1 pen) award B2 for answer of 3.85
or 345 seen award M2)

[3]

70. (a) 1250, 2501, 5201, 5210 1
Bl cao
- (b) 0.7, 0.705, 0.75 1
Bl for 0.7, 0.705, 0.75 (accept 70%, 70.5%, 75% or $\frac{7}{10}, \frac{705}{100}, \frac{75}{100}$)
- [2]
71. 29.00 3
Bl (accept 29)
- 6.00
Bl (accept 6)
- 68 (.00)
Bl ft for 39 + "29"
- [3]
72. $33.20 \div 40 = 0.83$
- $$\begin{array}{r}
 83 \\
 40 \overline{)3320} \\
 \underline{320} \\
 120
 \end{array}$$
- 83p or £0.83 3
M1 for $33.20 \div 40$ or $3320 \div 40$ or a valid partitioning method
A1 for sight of the digits 83
Bl ft for "cost of 1 litre" correctly written as money
SC Bl for sight of £1.20
- [3]
73. $8.57 - 8.11 = 46$
 $46 \times 12 = 552$
 5.52 4
M1 for $8:57 - 8:11$ or $57 - 11$ or 46 seen or evidence of counting on from 8:11 to 8:57 accept $8:11 - 8:57$
M1 for " 46 " $\times 12$
A1 cao for digits 552
Bl ft for "5.52"
- [4]

74. $1.99 + 1.99 = 3.98$
 $5 - 3.98 =$
 1.02 2
M1 for 2×1.99 or for $5 - 2 - 2$
A1 for 102(p) or for £1.02
SC B1 for £1.2 or £1.2p
[2]
75. $28.80 \div 30 = 0.96$ 3
 96p or £0.96
M1 for $28.80 \div 30$ or valid partitioning method, allow one arithmetic error
A1 for sight of 0.96 or 96
B1 ft for their cost of one litre correctly written as money
[3]
76. C [1]
77. E [1]
78. A [1]
79. E [1]
80. (a) 0.25 1
B1 cao
 (b) 5 1
B1 cao
[2]

81. C [1]

82. D [1]

83. B [1]

84. (a) 25 1
Bl for 25 cao

(b) 0.2 1
Bl for 0.2 cao

(c) $\frac{27}{100}$ 1
Bl for $\frac{27}{100}$ cao

[3]

85. (a) 0.9 1
Bl for 0.9

(b) 75 1
Bl for 75 cao

(c) $\frac{23}{100}$ 1
Bl for $\frac{23}{100}$ o.e.

(d) 10 1
Bl for 10 cao

[4]