Edexcel GCSE

Mathematics

Foundation Tier

Number: Fractions

Information for students

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 94 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 "Fractions" 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.

<div align="center">

GCSE Mathematics

Formulae: Foundation Tier

You must not write on this formulae page.

Anything you write on this formulae page will gain NO credit.

</div>

Area of trapezium = $(a + b)h$
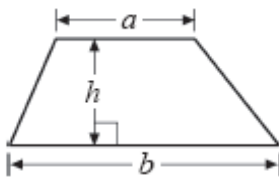
Volume of prism = area of cross section × length
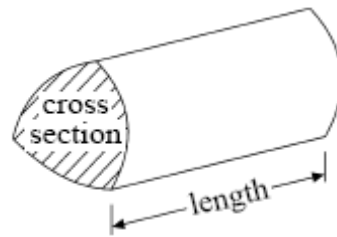
1. (a) Write down the fraction of this shape that is shaded.
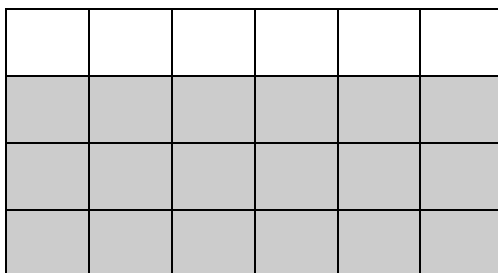
Write your fraction in its simplest form.

....

(2)

(b) Shade $\frac{2}{3}$ of this shape.
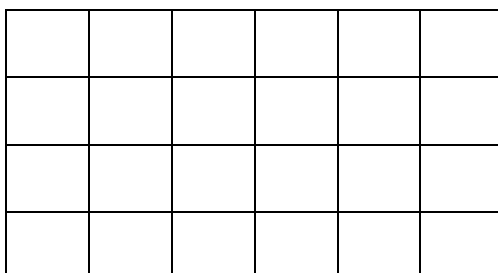
(1)
(Total 3 marks)

2. 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)

3. Here are two fractions $\frac{3}{5}$ and $\frac{2}{3}$.

Explain which is the larger fraction.

You may use the grids to help with your explanation.

....

....

....
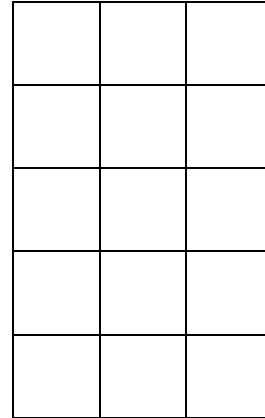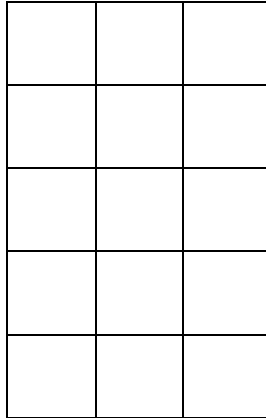
(Total 3 marks)

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

Favourite Supermarkets for families

TRESCO	SALISBURY	BROADWAY	MONTROSE	GATESHEAD
20%	18%	9%	7%	5%
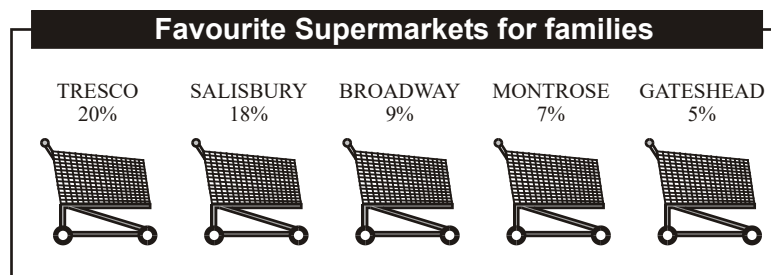
(a)   Write as a **fraction** the percentage whose favourite supermarket was Montrose.

....

(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.   Nassim buys petrol from his local garage.

On Monday, he filled up his tank.

On Tuesday, his tank was $\frac{3}{4}$ full.

(a)   What fraction of the full tank of petrol had he used?

....

(1)

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

....
(1)

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

....
(1)

The garage has a diagram for converting gallons to litres.
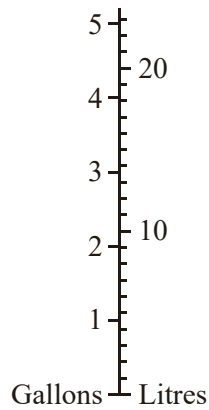
(d)   Use the diagram to convert

(i)   2 gallons to litres,

.... litres

(ii)   3.5 gallons to litres.

.... litres
(2)
(Total 5 marks)

6.   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) $\dfrac{1}{2}, \dfrac{2}{3}, \dfrac{2}{5}, \dfrac{3}{4}$

....

(Total 4 marks)

7.   A school has 1200 pupils.
575 of these pupils are girls.

$\dfrac{2}{5}$ of the girls like sport.

$\dfrac{3}{5}$ of the boys like sport.

Work out the total number of pupils in the school who like sport.

…………………………..
(Total 3 marks)

8.
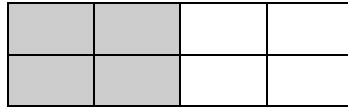
(a)   (i)   What fraction of this shape is shaded? Write your fraction in its simplest form.

....

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

(3)
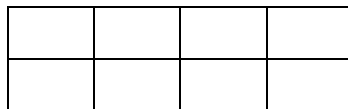
9 is the number that is half way between 6 and 12

6   ....**9**........   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 (×).

A   *B*

(1)
(Total 8 marks)

9.   (a)   Work out $\dfrac{11}{12} - \dfrac{5}{6}$

....
(2)

(b)   Estimate the value of $\dfrac{68 \times 401}{198}$

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

10.
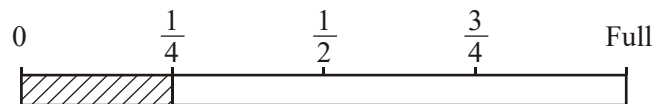
The diagram shows the measuring scale on a petrol tank.

(a)   What fraction of the petrol tank is empty?

....
(1)

The petrol tank holds 28 litres when full.
A litre of petrol costs 74p.

(b)   Work out the cost of the petrol which has to be added to the tank so that it is full.

£ ....

(3)

(c)   What is the reading on each of these scales?

(i)

.... mph

(ii)
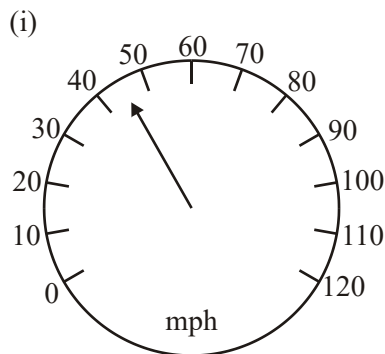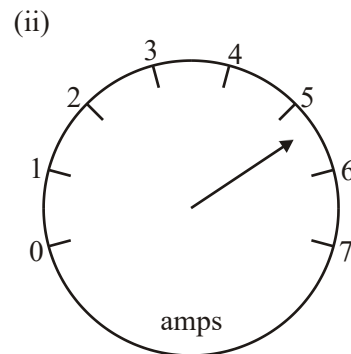
.... amps

(2)
(Total 6 marks)

11. A shop has a sale.
The bar chart shows some information about the sale.
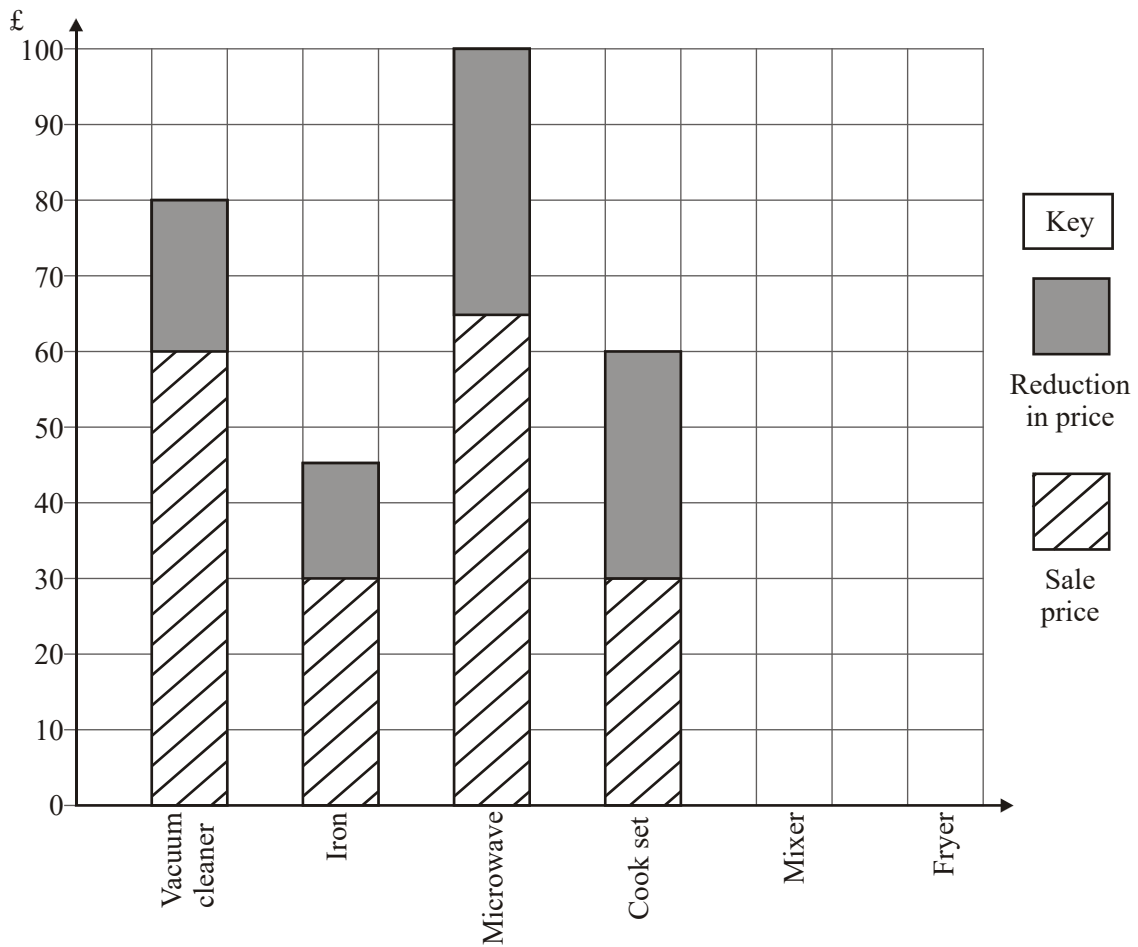
The normal price of a vacuum cleaner is £80
The sale price of a vacuum cleaner is £60
The price of a vacuum cleaner is reduced from £80 to £60

(a)   Write the sale price of a vacuum cleaner as a fraction of its normal price.
Give your answer in its simplest form.

....

(2)

(b)   Find the reduction in the price of the iron.

£ ....

(1)

(c)   Which **two** items have the same sale price?

.... and ....

(1)

(d)   Which item has the greatest reduction in price?

....

(1)

Mixer			Fryer	
Normal price	£90		Normal price	£85
Sale price	£70		Sale price	£70

(e)   Complete the bar chart for the mixer and the fryer.

(2)

(Total 7 marks)

12.   (a)   Write these five fractions in order of size.
                 Start with the smallest fraction.

$$\frac{3}{4} \qquad \frac{1}{2} \qquad \frac{3}{8} \qquad \frac{2}{3} \qquad \frac{1}{6}$$

....

(2)

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

$$65\% \qquad \frac{3}{4} \qquad 0.72 \qquad \frac{2}{3} \qquad \frac{3}{5}$$

....

(2)
(Total 4 marks)

13.

Cat facts

- 40% of people named cats as their favourite pet.

- 98% of women said they would rather go out with someone who liked cats.

- About $7\frac{1}{2}$ million families have a cat.

- $\frac{1}{4}$ of cat owners keep a cat because cats are easy to look after.
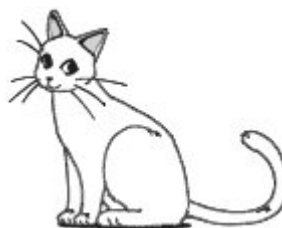
(a)   Write 40% as a fraction.
       Give your fraction in its simplest form.

                                                          ……………………..
                                                                                      (2)

(b)   Write 98% as a decimal.

                                                          ……………………..
                                                                                      (1)

(c)   Write $7\frac{1}{2}$ million in figures.

                                                          ……………………..
                                                                                      (1)

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

                                                          ……………………%
                                                                                      (1)

(e)   What percentage of people did **not** name cats as their favourite pet?

……………………%

(1)
(Total 6 marks)

14.   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)

15. Jade made a train journey.

Her train should have arrived at 14 40

It arrived 1 hour 50 minutes late.

(a)   At what time did her train arrive?

……………………..

(1)

The railway company gave Jade some money back, because her train was late.

The company used this rule to work out the amount of money.

Find $\frac{1}{4}$ of the ticket price
Then round **up** this answer to the next whole number of pounds

Jade's ticket price was £33.56

(b)   (i)   Work out $\frac{1}{4}$ of £33.56

£……………………

(ii)   Round up your answer to part (i) to the next whole number of pounds.

£……………………

(3)
(Total 4 marks)

16.   Work out $60 \times \dfrac{2}{3}$

……………………..
(Total 2 marks)

17. Alison travels by car to her meetings.

Alison's company pays her 32p for each mile she travels.

One day Alison writes down the distance readings from her car.

Start of the day: 2430 miles
End of the day: 2658 miles

(a) Work out how much the company pays Alison for her day's travel.

£……………………

(4)

The next day Alison travelled a total of 145 miles.

She travelled $\frac{2}{5}$ of this distance in the morning.

(b) How many miles did she travel during the rest of the day?

………………miles

(3)

Tom also travels by car to his meetings.

Tom's company works out the amount it will pay him for the distance he travels.

It uses the graph below.
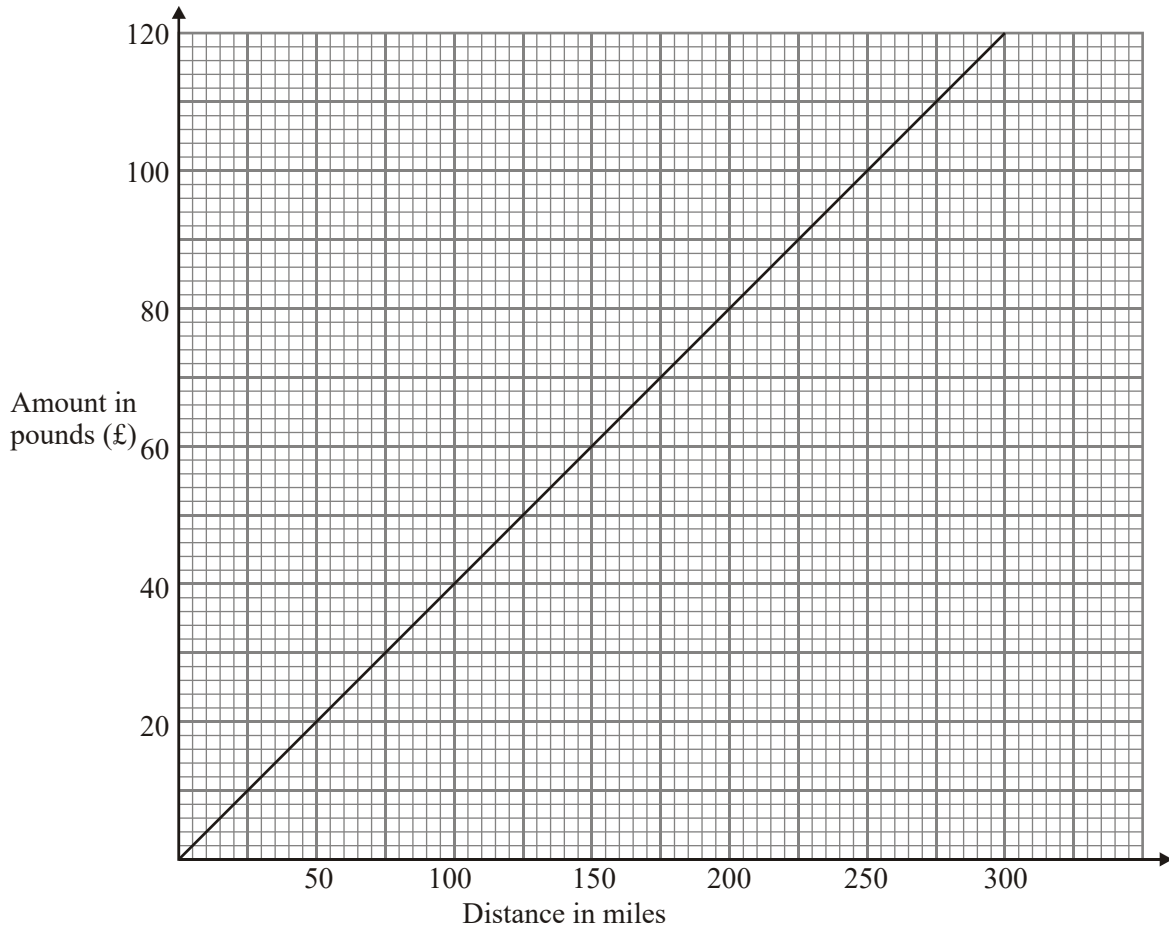
(c)   Use the graph to write down

(i)   the amount Tom's company pays him when he travels 200 miles,

£……………………

(ii)   the distance Tom travels when his company pays him £50.

………………miles

(2)
(Total 9 marks)

18.
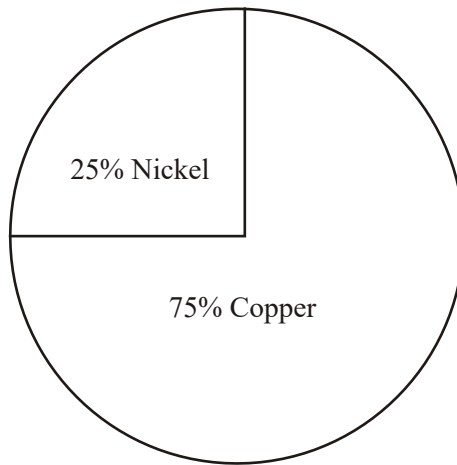
The weight of a coin is 25% nickel and 75% copper,

(a) (i) Write 25% as a decimal.

……………………….

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

……………………….

(2)

The weight of a coin is 8 grams.
25% of the weight is nickel and 75% of the weight is copper.

(b) (i) Work out 25% of 8 grams.

……………………….grams

(ii) Work out 75% of 8 grams.

……………………….grams

(2)
(Total 4 marks)

19. A train travels from London to Manchester.

It leaves London at 16 55
It arrives in Manchester at 19 45

(a) Work out the number of minutes this train takes to travel from London to Manchester.

....

(3)

There are 800 people on the train at Manchester.

$\dfrac{1}{10}$ of these 800 people are children.

(b) (i) Work out $\dfrac{1}{10}$ of 800

....

$\dfrac{3}{8}$ of those 800 people are women.

(ii) Work out $\dfrac{3}{8}$ of 800

....

The rest of the 800 people are men.

(iii) Work out the number of men on the train.

....

(4)

320 of the 800 people are under 21 years old.

(c)   Work out 320 out of 800 as a percentage.

………………………%

(2)
(Total 9 marks)

20.   (a)   Write $\dfrac{1}{10}$

(i)   as a decimal,

…………………cm

(ii)   as a percentage.

…………………cm

(2)

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

(1)
(Total 3 marks)

21.   Danny shares a bag of 20 sweets with his friends.

He gives Mary $\frac{3}{5}$ of the sweets.

He gives Ann $\frac{1}{10}$ of the sweets.

He keeps the rest for himself.

How many sweets does Danny keep for himself?

....
(Total 3 marks)

22.   Lewis wants to buy a new pair of trainers.

There are 3 shops that sell the trainers he wants.

Sports '4' All	**Edexcel Sports**	**Keef's Sports**
Trainers	**Trainers**	**Trainers**
£5	$\frac{1}{5}$ off	**£50**
plus	usual price of	plus
10 payments of £4.50	**£65**	VAT at 17/2%

(a)   Work out the cost of a pair of the trainers in Sports '4' All.

£ ………………………

(2)

£ ………………………

(2)

(b)   Work out the cost of a pair of the trainers in Edexcel Sports.

£ ………………………

(2)

(Total 4 marks)

23.   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)

24.

Shape A

(a)   What fraction of Shape A is shaded?

....
(1)

Shape B
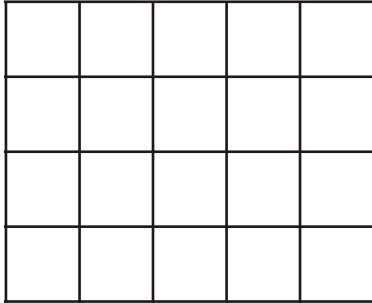
(b)   (i)   Shade 20% of Shape B.

       (ii)   What percentage of shape B is **not** shaded?

.... %

(2)

(c)   What is the reading on each of these scales?

       (i)   (ii)

       (i) .... kg   (ii) .... kg

(2)
(Total 5 marks)

25.

Young Person's RAILCARD
$\frac{1}{3}$ off normal price
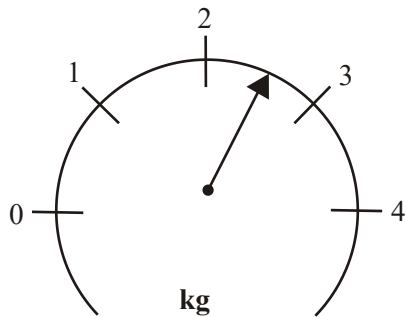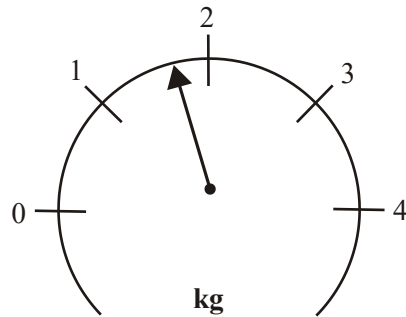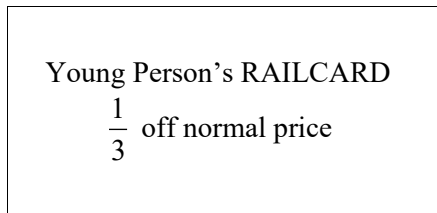
Lisa uses her railcard to buy a ticket.

She gets $\frac{1}{3}$ off the normal price of the ticket.

The normal price of the ticket is £24.90

Work out how much Lisa pays for the ticket.

£ ....
(Total 3 marks)

26.   (a)   Shade $\frac{3}{4}$ of this shape.
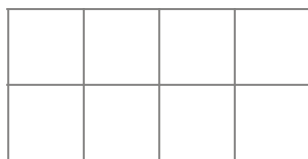
(1)

(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)

27.   (a)   Here are some fractions.

$\dfrac{2}{4}$ $\dfrac{4}{8}$ $\dfrac{2}{5}$ $\dfrac{7}{14}$

Which one of these fractions is **not** equal to $\dfrac{1}{2}$?

....

Give a reason for your answer.

....

....

(2)

(b)   Work out $\dfrac{3}{4}$ of 20

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

28.   (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)

29. (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.

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

....

                                                                                    (2)
                                                                        (Total 8 marks)

30.

```
┌──────────────────────────┐
│      Gift shop           │
│                          │
│  Price list              │
│                          │
│  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)

31. The table shows some information about the medals won by each of 6 countries at the 2004 Olympic Games.

Country	Medals			
	Gold	**Silver**	**Bronze**	**Total**
United States	35	39	29	103
Russia	27	27	38	....
Australia	17	16	....	49
Germany	14	16	18	48
Italy	10	11	11	32
Great Britain	9	9	12	30

(a) Complete the table for Russia and Australia.

(2)

(b) How many bronze medals did Russia win?

....

(1)

(c) Which country won 10 gold medals?

....

(1)

Great Britain won a total of 30 medals.

(d) Work out the fraction of these medals which were silver.
Give your fraction in its simplest form.

....

(2)

(e) Find the ratio of the total number of medals won by Germany to the total number of medals won by Italy.
Give your ratio in its simplest form.

....

(2)
(Total 8 marks)

32. There are 600 counters in a bag.

90 of the counters are yellow.

(a) Work out 90 as a fraction of 600
Give your answer in its simplest form.

....

(2)

180 of the 600 counters in the bag are red.

(b) Work out 180 as a percentage of 600

.... %

(2)

The rest of the counters in the bag are blue or green.
There are twice as many blue counters as green counters.

(c)   Work out the number of green counters in the bag.

....
(2)
(Total 6 marks)

33.   (a)   Write down the fraction of this shape that is shaded.
Give your fraction in its simplest form.
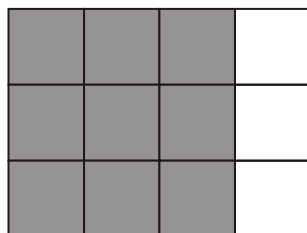
....
(2)

(b)   Shade $\dfrac{2}{7}$ of this shape.
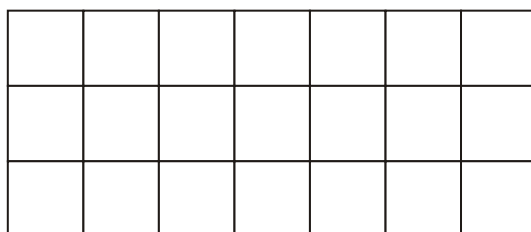
(1)

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

....
(1)

(d)   Write 0.39 as a fraction.

....
(1)
(Total 5 marks)

34.   36 students each went to one revision class.

$\dfrac{1}{6}$ of the students went to the physics revision class.

$\dfrac{2}{9}$ of the students went to the biology revision class.

All of the other students went to the chemistry revision class.

How many students went to the chemistry revision class?

....
(Total 3 marks)

35. Here are some fractions.

$\dfrac{2}{8}$	$\dfrac{3}{10}$	$\dfrac{4}{16}$	$\dfrac{5}{20}$	$\dfrac{8}{24}$

Two of the fractions are **not** equivalent to $\dfrac{1}{4}$.

Tick the boxes underneath each of these **two** fractions.

(Total 2 marks)

36. (a) Work out $\dfrac{3}{5}$ of 185.

....
(2)

(b) Work out 12% of £9.50.

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

37. (a) Find the positive square root of 2.56.

....
(1)

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

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

………………………………………………………………

(2)
(Total 3 marks)

38.   (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)

39.
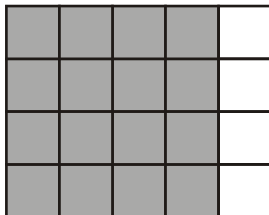
(a)   What fraction of the shape is shaded?
       Give your answer in its simplest form.

       …………………………….
                                                              (1)

(b)   What percentage of the shape is **not** shaded?

       …………………………%
                                                              (2)
                                                       (Total 3 marks)

40.   (a)   Work out

               41.3 × 100

                                    …………………………
                                                              (1)

(b)   Work out

       0.4 × 0.6

                                    …………………………
                                                              (1)

(c)   Work out

5.2 – 1.37

…………………………
(1)
(Total 3 marks)

41.   (a)   Write $\dfrac{1}{5}$ as a percentage.

…………………………… %
(1)

(b)   Write 0.7 as a percentage.

………………………… %
(1)
(Total 2 marks)

42.   Anil sold his car for £600.
He put £250 of the £600 in a bank account.

Write £250 as a fraction of £600.
Give your answer as a fraction in its simplest form.

……………………………
(Total 2 marks)

43.   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)

44.   Miriam gave her mother **two** £5 notes.

          Miriam said, "This is $\frac{1}{4}$ of my day's pay."

          Work out Miriam's pay that day.

          £ ………………..
          (Total 2 marks)

45.   Work out $\dfrac{2}{3} \times \dfrac{5}{6}$

Give your answer as a fraction in its simplest form.

……………………………..
(Total 2 marks)

46.   (a)   Write $\dfrac{1}{4}$ as a percentage.

…………………%
(1)

(b)   Write 0.23 as a percentage.

…………………%
(1)

(c)   Write 42% as a fraction.
Give your answer in its simplest form.

…………………
(2)
(Total 4 marks)

47. In a shop the normal price of a jacket is £60

The cost of the jacket in a sale is $\frac{3}{4}$ of the normal price.

(a)   Work out $\frac{3}{4}$ of £60

£…………..

(2)

Darren has to travel $\frac{1}{8}$ mile to the shop.

(b)   Write $\frac{1}{8}$ as a decimal.

………………

(2)
(Total 4 marks)

48.
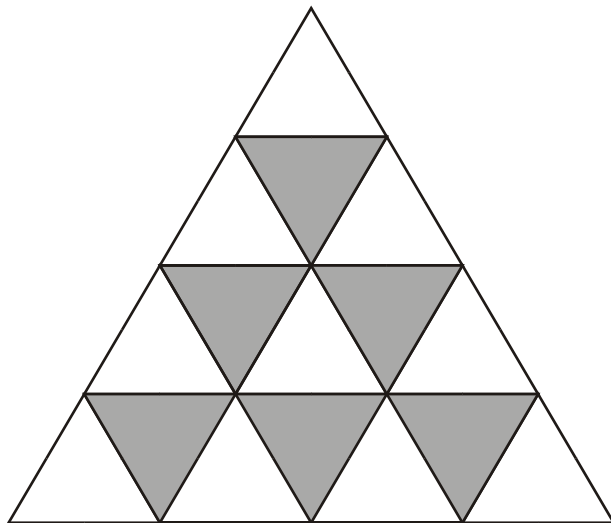
What fraction of the large triangle is shaded?
Give your fraction in its simplest form.

……………………….
(Total 2 marks)

49.   Here are six numbers

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

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

Draw a circle around each of the two numbers.

(Total 2 marks)

50. (a) Write 0.38 as a percentage.

………………… %

(1)

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

………………… %

(1)

(Total 2 marks)

51. There are 30 students in a class.
20 of these students are female.

Find the fraction of the class that is female.
Give your answer in its simplest form.

………………..

(Total 2 marks)

52.
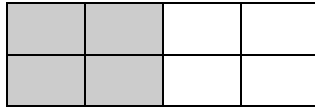
(a)   (i)   What fraction of this shape is shaded?
Write your fraction in its simplest form.

....

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

(3)
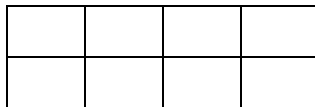
9 is the number that is half way between 6 and 12.

6 ....**9**....... 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) $\dfrac{1}{4}$ .... $\dfrac{1}{2}$

(4)
(Total 7 marks)

53. $\dfrac{5}{8}$ $\dfrac{1}{2}$ $\dfrac{3}{4}$

Write these fractions in order of size.
Start with the smallest fraction.

....
(Total 2 marks)

54. Work out $\dfrac{3}{7}$ of 168

....
(Total 2 marks)

55. (a) Work out

(i) $3 - 11$

....

(ii) -3×-5

....
(2)

(b)   Work out $\dfrac{7}{8} - \dfrac{1}{4}$

....

(2)
(Total 4 marks)

56.   Linda's mark in a maths test was 36 out of 50

Find 36 out of 50 as a percentage.

.... %
(Total 2 marks)

57.   The Maldives is a country made up of 2000 islands.
People live on only 220 of these islands.

Write 220 as a fraction of 2000
Give your answer in its simplest form.

....
(Total 2 marks)

58.   Jessica's annual income is £12 000
       She pays 10% of the £12 000 in rent.

       She spends $\dfrac{1}{4}$ of the £12 000 on clothes.

       Work out how much of the £12 000 Jessica has left.

                                                            £ ....
                                                            (Total 3 marks)

59.   (a)   Write $\dfrac{1}{5}$ as a percentage.

                                                            .... %
                                                            (1)

       (b)   Write 0.64 as a percentage.

                                                            .... %
                                                            (1)

       (c)   Write 70% as a decimal.

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

60. (a) What fraction of this shape is shaded?

....
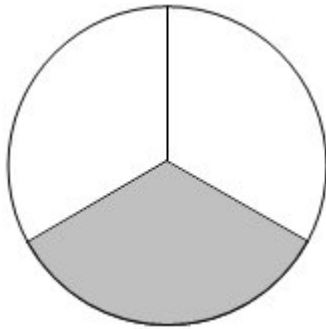
(1)

(b) Shade $\dfrac{5}{8}$ of this shape.

(1)

(c) What percentage of this shape is shaded?

.... %

(1)

(Total 3 marks)

61.   (a)   Write 0.37 as a fraction.

....

(1)

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

....

(2)

(Total 3 marks)

62.   Work out $\dfrac{5}{7} - \dfrac{2}{3}$

....

(Total 2 marks)

63.   (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)

64.   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%, $\dfrac{3}{4}$,   0.6, $\dfrac{2}{3}$

…………………………………………………………

(2)
(Total 4 marks)

65.

Cat facts

- 40% of people named cats as their favourite pet.

- 98% of women said they would rather go out with someone who liked cats.

- About $7\dfrac{1}{2}$ million families have a cat.

- $\dfrac{1}{4}$ of cat owners keep a cat because cats are easy to look after.
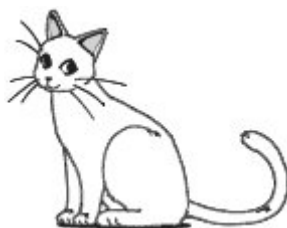
(a)   Write 40% as a fraction.
        Give your fraction in its simplest form.

………..…..

(2)

(b)   Write $7\frac{1}{2}$ million in figures.

………………………………..

(1)

(c)   What percentage of people did **not** name cats as their favourite pet?

…………... %

(1)

(Total 4 marks)

66.   (a)   Work out $60 \times \dfrac{2}{3}$

…………..

(2)

(b)   Work out the value of $5t^2 - 7$ when $t = 3$

…………..

(2)

(c)   Simplify $4p \times 2q$

…………..
                                                                                                (1)
                                                                                    (Total 5 marks)

67.   Alison travels by car to her meetings.
Alison's company pays her 32p for each mile she travels.

One day Alison writes down the distance readings from her car.

Start of the day: 2430 miles
End of the day: 2658 miles

(a)   Work out how much the company pays Alison for her day's travel.

£ …………………
                                                                                                (4)

Tom also travels by car to his meetings.
Tom's company works out the amount it will pay him for the distance he travels.
It uses the graph below.
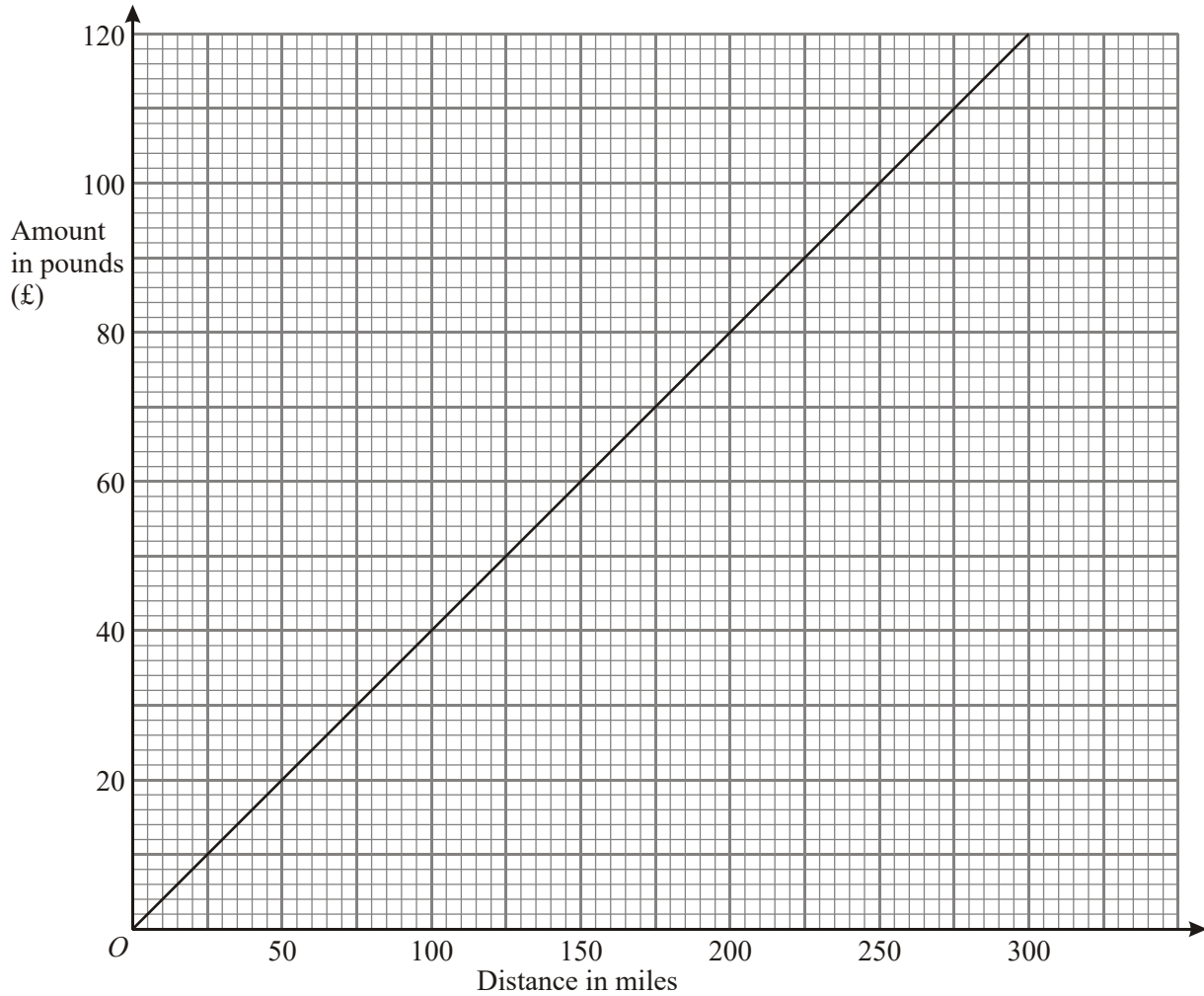
(b)   Use the graph to write down

(i)   the amount Tom's company pays him when he travels 200 miles,

£ ………………..

(ii)   the distance Tom travels when his company pays him £50.

……………….. miles

(2)
(Total 6 marks)

68. (a) Work out $\dfrac{4}{5}$ of 30

....
                                                                                          (2)

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

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

69. (a) Write 0.85 as a percentage.

.... %
                                                                                          (1)

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

.... %
                                                                                          (1)

(c) Write 60% as a decimal.

....
                                                                                          (1)

(Total 3 marks)

70.   Write these fractions in order of size.
       Start with the smallest fraction.

$$\frac{9}{16} \quad \frac{3}{4} \quad \frac{1}{2} \quad \frac{5}{8}$$

…………………………….
(Total 2 marks)

71.   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)

72.   (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)

73.
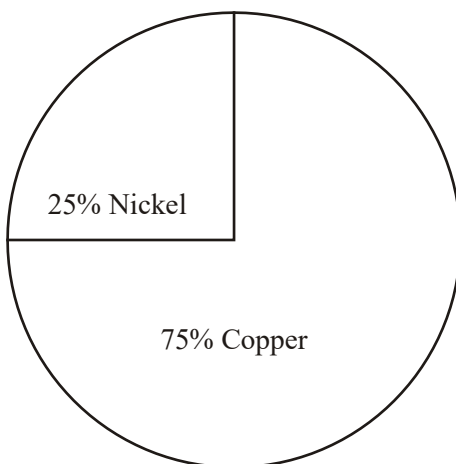
The weight of a coin is 25% nickel and 75% copper,

(i)   Write 25% as a decimal.

…………………….

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

…………………….
                                                                    (Total 2 marks)

74.   There are 800 people on a train at Manchester.

$\dfrac{1}{10}$ of these 800 people are children.

(i)   Work out $\dfrac{1}{10}$ of 800

……………………….

$\dfrac{3}{8}$ of these 800 people are women.

(ii)   Work out $\dfrac{3}{8}$ of 800

……………………….
                                                                (Total 3 marks)

75.   Danny shares a bag of 20 sweets with his friends.

He gives Mary $\dfrac{3}{5}$ of the sweets.

He gives Ann $\dfrac{1}{10}$ of the sweets.

He keeps the rest for himself.

How many sweets does Danny keep for himself?

……………………….
                                                                (Total 3 marks)

76.   (a)   Write 37% as a fraction.

....
                                                                        (1)

(b)   Work out 37% of £415

£ ....

(2)
(Total 3 marks)

77.   (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)

78.   Here are two fractions $\dfrac{4}{5}$ and $\dfrac{3}{4}$

Explain which is the larger fraction.

You may use the grids to help with your explanation.

....

....

....
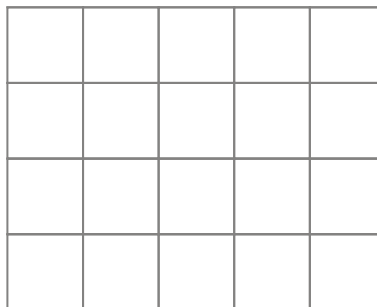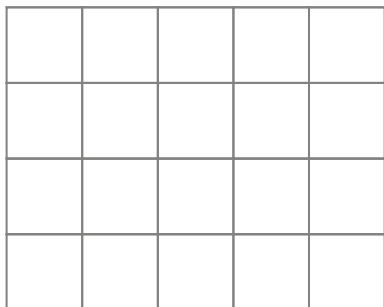
(Total 2 marks)

79.   Which of these numbers is equivalent to $\dfrac{3}{4}$?

0.7	$\dfrac{9}{12}$	$\dfrac{2}{3}$	0.12	$\dfrac{7}{8}$
A	**B**	**C**	**D**	**E**

(Total 1 mark)

80.   Which fraction is equal to $\dfrac{4}{5}$?

$\dfrac{7}{8}$	$\dfrac{2}{10}$	$\dfrac{16}{20}$	$\dfrac{20}{30}$	$\dfrac{12}{20}$
A	**B**	**C**	**D**	**E**

(Total 1 mark)

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

$$3\frac{57}{100} \qquad \frac{357}{10} \qquad \frac{357}{100} \qquad \frac{357}{1000} \qquad \frac{357}{10000}$$

     A   **B**   **C**   **D**   **E**

(Total 1 mark)

82. A box contains 15 red pens and 5 blue pens.

(a) Write the ratio 15 : 5 in its simplest form.

....

(1)

Another box contains green crayons and black crayons.

The ratio of the number of green crayons to the number of black crayons is 5 : 3

(b) What fraction of the crayons are green?

....

(2)

(Total 3 marks)

83.   (a)   Work out $\dfrac{1}{5}$ of 30

....
(1)

(b)   Work out $\dfrac{3}{4}$ of 20

....
(2)
(Total 3 marks)

84.   A class has 29 students.
16 of the students are girls.

What fraction of the students are boys?

....
(Total 2 marks)

85.   A box contains 200 tissues.

Toby takes $\dfrac{3}{5}$ of these tissues.
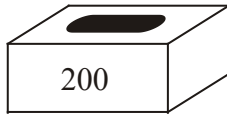
Work out how many tissues he takes.

....
(Total 2 marks)

86.   (a)   Write 0.24 as a percentage.

.... %
(1)

(b)   Write 0.7 as a percentage.

.... %
(1)

(c)   Write $\dfrac{1}{4}$ as a percentage.

.... %

(1)

(d)   Work out $3 \times \dfrac{1}{5}$

....

(1)

(e)   Write 7 centimetres as a fraction of 2 metres.

....

(2)

(Total 6 marks)

87.   5 identical watches cost £20

(a)   Work out the cost of 8 of these watches.

£ ....

(2)

A pen costs 60p.

The cost of a pencil is $\dfrac{2}{3}$ of the cost of a pen.

(b)   Work out the cost of a pencil.

.... p

(2)
(Total 4 marks)

88.   A box contais only red pencils and blue pencils.
The ratio of the number of red pencils to the number of blue pencils is 2 : 3

What fraction of the pencils are red?

....
(Total 2 marks)

89. Here is a list of numbers.

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

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)

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

....

(1)

(b) Find 10% of £50

£ ....

(1)
(Total 2 marks)

91. What fraction of the shape is shaded?

$\dfrac{1}{5}$ 5 $\dfrac{5}{12}$ $\dfrac{5}{7}$ $\dfrac{7}{12}$
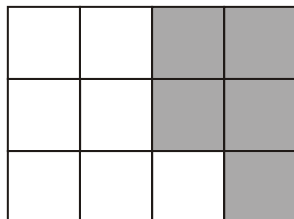
A   **B**   **C**   **D**   **E**

(Total 1 mark)

92. Which fraction is equal to 1.17?

$\dfrac{117}{1}$ $\dfrac{117}{10}$ $\dfrac{117}{100}$ $\dfrac{117}{1000}$ $\dfrac{117}{10000}$

A   **B**   **C**   **D**   **E**

(Total 1 mark)

93. (a) Write 25.2 to the nearest whole number.

....

(1)

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

....

(1)

(c)   Write 27% as a fraction.

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

94.   (a)   Write $\dfrac{9}{10}$ as a decimal.

....
                                                    (1)

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

.... %
                                                    (1)

(c)   Write 23% as a fraction.

....
                                                    (1)

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

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

01.   (a) $\frac{3}{4}$ 2

$\frac{18}{24}$ or $\frac{9}{12}$ or $\frac{6}{8}$

B2 for $\frac{3}{4}$ cao

(B1 for $\frac{18}{24}$ or $\frac{9}{12}$ or $\frac{6}{8}$) SC B1 for $\frac{1}{4}$ only

(b)   16 squares shaded   1
B1 cao

[3]

02.   (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]

03. $\frac{2}{3}$

M1 for 3 rows (9 squares) shaded
M1 for 2 columns (10 squares) shaded
A1 for $\frac{2}{3}$

$$\frac{2}{3}$$

$$\frac{3}{5} = \frac{9}{15}$$

$$\frac{2}{3} = \frac{10}{15}$$

$$M1 \ for \ \frac{3}{5} = \frac{9}{15}$$

$$M1 \ for \ \frac{2}{3} = \frac{10}{15}$$

$$A1 \ for \ \frac{2}{3}$$

$$\frac{2}{3}$$

$$\frac{3}{5} = 0.6$$

$$\frac{2}{3} = 0.66 \ or \ 0.67 \ \text{or better}$$

$$M1 \ for \ \frac{3}{5} = 0.6 \qquad\qquad\qquad) \ Accept$$

$$)$$

$$M1 \ for \ \frac{2}{3} = 0.66 \ or \ 0.67 \ or \ better \quad) \ percentages$$

$$A1 \ for \ \frac{2}{3}$$

[3]

04.   (a) $\dfrac{7}{100}$ 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.   (a) $\frac{1}{4}$ oe   1

              B1 cao

          (b)   0.75   1

              B1 cao

          (c)   75%   1

              B1 cao

          (d)   (i)   9   2
              B1 accept answer in range 9 – 9.2

                 (ii)   15 - 16
              B1 accept answers in range15 – 16

                                                                                                    [5]

06.   (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]

07.

605   3

$575 \div 5 \times 2 = 230$
$1200 - 575 = 625$
$625 \div 5 \times 3 = 375$
$375 + 230 =$

M1 for 575 ÷ 5 × 2 (= 230) oe
M1 for "625" ÷ 5 × 3 (= 375) oe with "625" from subtraction
A1 cao

[3]

08.   (a)   (i) $\dfrac{1}{2}$ 2

B2 for ½ accept half
(B1 for an equivalent unsimplified fraction eg 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^{½}

(iv) $\dfrac{3}{8}$

B1 for $\dfrac{3}{8}$ oe accept 0.375

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

[8]

09. (a) $\dfrac{1}{12}$ 2

$\dfrac{11}{12} - \dfrac{10}{12}$

M1 for correctly writing both fractions to a common denominator

A1 for $\dfrac{1}{12}$ oe

(b)   140   2

$\dfrac{70 \times 400}{200}$

B2 for 140 (accept 136)
(B1 for sight of any two of 70, 400 or 200)

[4]

10. (a) $\dfrac{3}{4}$ 1

B1 accept 0.75, 75%

(b)   15.54   3

$\dfrac{3}{4} \times 28 = 21$

M1 for $\dfrac{3}{4} \times 28$ or 21 seen

M1 for "21" × 74 or 28 × 74 or 7 × 74
A1 cao

(c)   (i)   44 – 46   2
B1 44 – 46 inc

(ii)   5.2 – 5.4
B1 5.2 – 5.4 inc

[6]

11. (a) $\dfrac{3}{4}$ 2

   M1 $\dfrac{80-20}{80}$ *or* $\dfrac{60}{80}$ *or 0.75 (oe)*
   A1 cao Do not accept equivalents

   (b)   15   1
   B1 cao

   (c)   Iron and Cook set   1
   B1 for both Accept mixer and fryer

   (d)   Microwave   1
   B1 cao

   (e)   Bar chart   2
   B1 one column (mixer): 70, 90
   B1 second column (fryer): 70, 85
   [SC: B1 columns correct but reversed]

   [7]

12. (a) $\dfrac{1}{6}, \dfrac{3}{8}, \dfrac{1}{2}, \dfrac{2}{3}, \dfrac{3}{4}$ 2
   B2 for all correct
   (B1 for 1 error or all correct but wrong order, or use of a
   common denominator decimals).

   (b)   3/5, 65%, 2/3, 0.72, 3/4   2
   B2 for all correct
   (B1 for 1 error or all correct but wrong order or conversions to
   decimals oe)

   [4]

13. (a) $\dfrac{2}{5}$ 2

   $\dfrac{40}{100}$

   B2 for $\dfrac{2}{5}$

   B1 for $\dfrac{40}{100}$ *or* $\dfrac{4}{10}$ *or* $\dfrac{20}{50}$ *or* $\dfrac{8}{20}$

   (b)   0.98   1
   B1 cao

(c)   7 500 000   1
              B1 cao

(d)   25   1
              B1 cao

(e)   60   1
              B1 cao

                                                                                        [6]

14.   (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]

15.   (a)   16 30   1
              B1 Accept 4 30 pm Do not accept 4 30

(b)   (i)   8.39   3

              33.56 ÷ 4 oe
              M1 for 33.56 ÷ 4 oe eg 3356 ÷ 4, division by 2 twice
              A1 cao

(ii) 9
              B1 ft from "8.39" unless whole number of pounds

                                                                                        [4]

16.   40   2

$M1$ *for 60 × 2 or 120 or 60 ÷ 3 or 20 or* $\dfrac{120}{180}$

A1 cao

[2]

17.   (a)   72.96   4

2658 – 2430 = 228

"228" × 32

M1 2658 – 2430
A1 228
M1 "228" × 32 or "228" × 0.32 or digits 7296 seen
A1 cao
Or
M1 for 2430 × 32 (or digits 77760 seen)
   or 2658 × 32 (or digits 85056 seen)
A1 if 1 correct
M1 for "85056" – "77760" or 7296 seen
A1 cao

(b)   87   3

$\dfrac{2}{5}$ × 145 = 58

145 – "58"

M1 $\dfrac{2}{5}$ *× 145 (or M1* $\dfrac{3}{5}$ *seen)*

A1 58 (or M1 $\dfrac{3}{5}$ *× 145)*

A1 for 87 ft

(c)   (i)   80   2
              B1 for 80 (± 1)

       (ii)   125
              B1 125 (± 3)

[9]

18.   (a)   (i)   0.25   2
                      B1 0.25

     (ii) $\dfrac{1}{4}$

           B1 cao

  (b)   (i)   2   2

           B1 cao

     (ii)   6

           B1 cao

                                                                 [4]

19.   (a)   16 55 – 17 00 is 5min
            17 00 – 19 45 is 2 45
            120 + 45 + 5
            170   3

               M1 for an attempt to partition,
                   eg sight of 5, 2 45, 10, –10, 50, 165 or 60, 60, 45
               A1 for 60 + 60 + 50, 2h50(min),
                   5 and 2h45(min) or 3h and –10
                   2 –50, 2.50, 2 50 (not 250 or 2.5)
               A1 cao

    (b)   (i)   80   4
                 B1 cao

     (ii)   800 ÷ 8 = 100
             3 × 100 = 300
             300
                M1 for 800 ÷ 8 or 800 × 3
                or 100 seen or 2400 seen
                A1 cao

     (iii)   800 – ("80" + "300")
              420
                B1 ft

(c)　　$\dfrac{320}{800} \times 100$

40　　　　　　　　　　　　　　　　　　　　　　　　　2

M1 for $\dfrac{320}{800}$ (oe)

A1 cao

[9]

20.　(a)　(i)　0.1　　　　　　　　　　　　　　　　　　1

B1 cao

(ii)　10%　　　　　　　　　　　　　　　　　1

B1 cao

(b)　12 squares shaded　　　　　　　　　　　　　1

B1 for any 12 squares shaded

[3]

21.　$\dfrac{3}{5} \times 20 + \dfrac{1}{10} \times 20 = 14$ or $\dfrac{12}{20} + \dfrac{2}{20} = \dfrac{14}{20}$

$20 -$"14" or $1 - \dfrac{"14"}{20}$

6　　　　　　　　　　　　　　　　　　　　　　　　3

M1 20 ÷ 5 × 3 or 20 ÷ 10 or 12 seen or 2 seen
M1(dep) for 20 – "14"
A1 cao
(SC B2 for 14 seen)
Alternative
M1 for $\dfrac{12}{20} + \dfrac{2}{20}$ or sight of $\dfrac{7}{10}$

M1 (dep) for 1 $\dfrac{"14"}{20}$ or 1– $\dfrac{7}{10}$ or sight of $\dfrac{3}{10}$

A1cao

[3]

22.　(a)　5 + 10 × 4.50

50　　　　　　　　　　　　　　　　　　　　　　　2

M1 for 10 × 4.50 or 45 seen
A1 for 50

(b)   65 – 65 ÷ 5
        52   2

        M1 for 65 ÷ 5 oe or 13 seen
        A1 for 52

                                                         [4]

23. (a)   Carbon black   1

        B1 accept 'black carbon' accept 26%

(b)   0.1(0)   1

        B1 cao

(c)   0.04   1

        B1 cao

(d) $\dfrac{26}{100}$

        $\dfrac{13}{50}$ 2

        M1 for $\dfrac{26}{100}$

        A1 cao

                                                           [5]

24. (a) $\dfrac{7}{10}$ 1

        B1 7/10 oe

(b)   (i)   4 squares

        (ii)   80%   2

        B1 4 squares shaded
        B1 80% or ft from unshaded part
        (no ft from 0% or 100%)

(c)   (i)   2.5

        (ii)   1.7   2

        B1 2.4 – 2.6 inclusive
        B1 1.6 – 1.8 inclusive

                                                           [5]

25. $24.90 \div 3$ or 8.30 3
          $24.90 - '8.30'$
          or $2 \times 8.30 = 16.6(0)$
                          M1 for $24.90 \div 3$ or 8.30
                          M1 (dep) for $24.90 - "8.30"$ or $2 \times "8.30"$
                          A1 for 16.60 or 16.6

                                                                                                          [3]

26.   (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]

27.   (a) $\dfrac{2}{5}$

                          B1 for $\dfrac{2}{5}$

          Reason   2

                          B1 for correct reason. E.g. "$\dfrac{2}{5}$ does not cancel to $\dfrac{1}{2}$" or "2 is

                          not half of 5" or "$\dfrac{2}{5}$ is 0.4" or "$\dfrac{2}{5}$ is less than $\dfrac{1}{2}$" or "(the

                          top is even and) the bottom is odd" oe

(b) $3 \times (20 \div 4)$
15   2

        M1 for 3 × (20 ÷ 4) oe or $\dfrac{60}{4}$ or 5 seen

        A1 for 15 cao

[4]

28. (a) 0.92   1

        B1 for 0.92 cao

(b) $\dfrac{3}{100}$ 1

        B1 for $\dfrac{3}{100}$ cao

(c) $\dfrac{5}{100} \times 400$
20   2

        M1 for $\dfrac{5}{100} \times 400$ oe

        A1 for 20 cao

[4]

29. (a) 9   1

        B1 cao

(b) 64   1

        B1 cao

(c) $\dfrac{4}{5}$ 2

        B2 for 4/5
        (B1 for 80/100 oe or 0.8)

(d) £32   2

        M1 for 10/100 × 320, or 320 ÷ 10
        A1 cao
        NB: £320-£32=£288 or £320+£32=£352 can be awarded M1
        A1, but £288 or £352 without working award B1

(e) 0.35, 3/8
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]

30. (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 ÷ 3 = 20
20 × 2 = 40   2

*M1 for 60 ÷ 3 or 60 × 2 or sight of 20 or 120
A1 cao*

[7]

31. (a) 92 and 16   2

*B1 for 92
B1 for 16*

(b) 38   1

B1 cao

(c) Italy   1

B1 cao

(d) $\dfrac{9}{30}$ 2

        $\dfrac{3}{10}$

        B2 cao

        (B1 for $\dfrac{9}{30}$)

(e)   48:32   2
        3:2

        B2 cao
        (B1 for sight of 48, 32 or two numbers in correct proportion)
        SC B1 for 2:3

        [8]

32. (a) $\dfrac{90}{600}$

        $\dfrac{3}{20}$ 2

        M1 $\dfrac{90}{600}$

        A1 $\dfrac{3}{20}$ *cao*

        [SC: B1 for 0.15 or 15% if M0 scored]

(b) $\dfrac{180}{600} \times 100$

        M1 $\dfrac{180}{600} \times 100$
        A1 cao

OR

$\dfrac{180}{600} = \dfrac{30}{100}$
30   2

        M1 $\dfrac{180}{600} = \dfrac{30}{100}$ *or attempt to cancel to 100*
        A1 cao

(c) $600 - (90 + 180) = 330$ blue or green
        $330 \div 3$
        110 2

            M1 ["600 – (90 + 180)"] ÷ 3
            A1 cao
            [SC: B1 for an answer of 140 or 170 if M0 scored]

                                                                                [6]

33. (a) $\dfrac{9}{12}$

              $\dfrac{3}{4}$ 2

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

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

        (c)   0.3   1
                B1 for 0.3 oe

        (d) $\dfrac{39}{100}$ 1

                B1 for $\dfrac{39}{100}$ oe as a fraction

                                                                                [5]

34. $\dfrac{1}{6} \times 36 = 6$

$\dfrac{2}{9} \times 36 = 8$

$36 - (8 + 6) = 22$ 3

M1 for $\dfrac{1}{6}$ *× 36 or 36 ÷ 6;* $\dfrac{2}{9}$ *× 36 or 36 ÷ 9 × 2 or 8 seen or*

14 seen or $\dfrac{1}{6} + \dfrac{2}{9}$ *or* $\dfrac{7}{18}$ *oe or 6 seen as long as not with*

incorrect working.

M1 (dep) for $36 - '(8 + 6)'$ *or* $36 - "\left(\dfrac{2}{9} + \dfrac{1}{6}\right)" \times 36$ *or*

$\left(1 - \dfrac{"1}{6} + \dfrac{2"}{9}\right) \times 36$

A1 for 22 cao

SC B2 for $\dfrac{22}{36}$ *oe fraction*

[3]

35. $\dfrac{3}{10}$ and $\dfrac{8}{24}$ 2

B1

B1 (−1 for each error)

[SC: $\dfrac{2}{8}$, $\dfrac{4}{16}$, $\dfrac{5}{20}$ *= B1]*

[2]

36.   (a)   111   2

$185 \times \dfrac{3}{5}$

*M1 for multiplying 185 by 3 **AND** dividing by 5*

A1

(b)   £1.14   2

$9.50 \times \dfrac{12}{100}$

*M1 for multiplying 9.50 by 12 **AND** dividing by 100*

A1 cao

[4]

37. (a)   1.6   1

          B1 cao

   (b)   35%, 0.4, $\dfrac{3}{7}$, $\dfrac{7}{15}$ 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]

38. (a)   45   4

          B1 cao

   (b)   75

          B1 cao

   (c) $\dfrac{3}{10}$

        $\dfrac{30}{100}$

        M1 for 30 ÷ 100 OR equivalent fraction
        A1 cao
        [SC: 3 ÷ 10 = M1, A0]

                                                                         [4]

39. (a) $\dfrac{4}{5}$ 1

          B1

   (b)   20%   2

       $\dfrac{1}{5} = \dfrac{20}{100}$

        B2 for 20%

        (SC :B1 for $\dfrac{1}{5}$ oe, or 80)

                                                                         [3]

40. (a) 4130   1
                   B1

(b) 0.24   1
                   B1

(c) 3.83   1
                   B1

                                                                                          [3]

41. (a) 20   1
                   B1

(b) 70   1
                   B1

                                                                                          [2]

42. $\dfrac{5}{12}$ 2

$\dfrac{250}{600}$

$M1 \text{ for } \dfrac{250}{600} \text{ oe fraction}$

A1

                                                                                          [2]

43. (i) 0.067, 0.56, 0.6, 0.605, 0.65
                   B1 cao

(ii) −10, −6, −4, 2, 5
                   B1 cao

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

B2 for all 4 correct
(B1 for any 3 in correct order)
SC: B1 for all 4 in reverse order

                                                                                          [4]

44.   40   2

   2 ×5 × 4

   M1 for 2 ×5 × 4 o.e.
   A1

   [2]

45. $\dfrac{5}{9}$ 2

   $\dfrac{10}{18}$

   M1 for $\dfrac{2 \times 5}{3 \times 6}$ *or* $\dfrac{10}{18}$ *oe*
   A1 cao

   [2]

46.   (a)   25   1
            B1

      (b)   23   1
            B1

      (c) $\dfrac{21}{50}$ 2

            M1 for $\dfrac{42}{100}$
            A1 cao

   [4]

47.   (a)   45   2

            $\dfrac{3}{4} \times 60$

            M1 for valid method that leads to 45
            A1

      (b)   0.125   2

            M1 for 1.0… ÷ 8 giving 0.1…
            A1

   [4]

48. $\dfrac{3}{8}$ 2

$M1 \ for \ \dfrac{6}{16}$

A1 cao

[2]

49. $\dfrac{8}{10}$ and $66\dfrac{2}{3}$ %   2

B2 for $\dfrac{8}{10}$ *and* $66\dfrac{2}{3}$ *(B1 for 1 correct).*

(−1 for each additional selection up to a max of −2)

[2]

50. (a)   38   1

B1

(b)   30   1

B1

[2]

51. $\dfrac{2}{3}$ 2

$\dfrac{20}{30}$

B2 (B1 for $\dfrac{20}{30}$ *oe)*

[2]

52.   (a)   (i) $\dfrac{1}{2}$ 2

> *B2 for ½, accept half*
> *(B1 for an equivalent unsimplified fraction eg 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 6.5½)*

(iv) $\dfrac{3}{8}$

> *B1 for* $\dfrac{3}{8}$ *oe (accept 0.375)*

[7]

53.   1/2, 5/8, 3/4 oe   2

5/8, 4/8, 6/8

> *M1 at least 2 written with common denominator or decimal*
> *equivalents*
> *A1 cao*

[2]

54.   72   2

168 ÷ 7 (= 24)
"24" × 3

> *M1 for 168 ÷ 7 × 3*
> *A1 cao*

[2]

55. (a) (i) − 8　　　　　　　　　　　　　　　　　　　　　　2

　　　　　　　B1 cao

　　　　(ii) 15

　　　　　　　B1 cao

　　(b) 5/8 oe　　　　　　　　　　　　　　　　　　　　　　　2

　　　　7/8 − 2/8

　　　　　　　M1 for correctly writing both fractions to a common denominator
　　　　　　　A1 for 5/8 oe

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[4]

56. 72　　　　　　　　　　　　　　　　　　　　　　　　　　2

　　36 ÷ 50 × 100

　　　　　　　M1 for 36/50 × 100 oe
　　　　　　　A1 cao

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[2]

57. $\dfrac{11}{100}$　　　　　　　　　　　　　　　　　　　　　　2

　　$\dfrac{220}{2000}$

　　　　　　　B2
　　　　　　　(B1 for $\dfrac{220}{2000}$ o.e.)

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[2]

58. 7800　　　　　　　　　　　　　　　　　　　　　　　　　3

　　$\dfrac{10}{100}$ × 12000 = 1200
　　12000 ÷ 4 = 3000
　　12000 − 4200

　　　　　　　M1 for valid method to reach 1200 or 3000
　　　　　　　(or 1200 or 3000 seen)
　　　　　　　M1 for complete method to reach "7800"
　　　　　　　A1 cao

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[3]

59. (a)   20   1

               B1

     (b)   64   1

               B1

     (c)   0.7   1

               B1 (accept 0.70)

               [3]

60. (a) $\dfrac{1}{3}$ 1

               B1

     (b)   shade 10   1

               B1

     (c)   40   1

               B1

               [3]

61. (a) $\dfrac{37}{100}$ 1

               B1

     (b)   1, 3, 7, 21   2

               B2 for 4 correct factors, no extras (B1 for 2 factors)

               [3]

62. $\dfrac{1}{21}$ 2

     $\dfrac{15}{21} - \dfrac{14}{21}$

               M1 for $\dfrac{15}{21}$ and $\dfrac{14}{21}$ oe (accept $\dfrac{5 \times 3}{21} - \dfrac{2 \times 7}{21}$)

               A1 for $\dfrac{1}{21}$ oe

               [2]

63.   (a)   37   1

             B1

      (b)   25   1

             B1

      (c) $\dfrac{19}{100}$ 1

             B1

      (d) $\dfrac{2}{7}$ 2

             M1 for $\dfrac{40}{140}$ *oe*

                                                                                                                                [5]

64.   (a)   13, 67, 76, 103, 130   1

                 B1 cao

      (b)   − 7, − 3, − 1, 0, 5   1

                 B1 cao

      (c)   0.6, 2/3, 70%, ¾   2

                 B2 (B1 for any 3 in correct order)

                                                                                                                                 [4]

65.   (a)   2/5   2

             40/100

                 B2 for 2/5

                 (B1 for 40/100 or 4/10 or 20/50 or 8/20 or 10/25)

      (b)   7 500 000   1

                 B1

      (c)   60   1

                 B1

                                                                                                                                 [4]

66.   (a)   40   2

$60 \times \dfrac{2}{3}$

M1 for 60 × 2 or 120 seen or 60 ÷ 3 or 20 seen
A1 cao

(b)   38   2

5 × 9 – 7 = 45 – 7

M1 for 3 × 3 (= 9) or 45 seen
A1 cao

(c)   8pq   1

B1 accept in any order but must not include ×

[5]

67.   (a)   72.96   4

2658 – 2430 = 228
"228" × 32

M1 2658 – 2430
A1 228
M1 "228" × 32 or "228" × 0.32 or digits 7296 seen
A1 cao

Or

M1 for 2430 × 32 (or digits 77760 seen)
or 2658 × 32 (or digits 85056 seen)
A1 if 1 correct
M1 for "85056" – "77760" or 7296 seen
A1 cao

(b)   (i)   80   2

B1 for 80 (± 1)

(ii)   125

B1 for 125 (± 3)

[6]

68.   (a) $\dfrac{30}{5} = 6$, 6 × 4 = 24

24   2

M1 for dividing 30 by 5 or multiplying by 4
A1 cao

(b)　4.0 divided by 5
　　　0.8(0)　　　　　　　　　　　　　　　　　　　　　　　　　　　2

　　　　　　　M1 for 4 ÷ 5 or $\frac{8}{10}$ or 80%

　　　　　　　A1

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[4]

69.　(a)　85　　　　　　　　　　　　　　　　　　　　　　　　1
　　　　　　　B1

　　　(b)　10　　　　　　　　　　　　　　　　　　　　　　　　1
　　　　　　　B1

　　　(c)　0.6(0)　　　　　　　　　　　　　　　　　　　　　　1
　　　　　　　B1

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[3]

70.　$\frac{1}{2}, \frac{9}{16}, \frac{5}{8}, \frac{3}{4}$　　　　　　　　　　　　　　　　　　　　　2

　　　　　　　B2 for all in correct order
　　　　　　　(B1 1 error or reverse order)

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[2]

71.　0.333…, 0.375, 0.3, 0.35

　　　0.3, $\frac{1}{3}$, 35%, $\frac{3}{8}$　　　　　　　　　　　　　　　　　　2

　　　　　　　B2 correct order
　　　　　　　(B1 just one out of place, or correct reverse order)

　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[2]

72.　(a)　(i)　25　　　　　　　　　　　　　　　　　　　　　2
　　　　　　　　　B1 cao

　　　　　(ii)　80
　　　　　　　　　B1 cao

(b)   0.76   1

   B1cao

(c) $\dfrac{45}{100}$

       $\dfrac{9}{20}$ 2

   M1 for $\dfrac{45}{100}$

   A1 cao

   [5]

73.   (i)   0.25   2

   B1 0.25

(ii) $\dfrac{1}{4}$

   B1 cao

   [2]

74.   (i)   80   1

   B1 cao

(ii) $800 \div 8 = 100$
        $3 \times 100 = 300$
        300   2

   M1 for $800 \div 8$ or 800×3 or 100 seen or 2400 seen

   A1 cao

   [3]

75. $\dfrac{3}{5} \times 20 + \dfrac{1}{10} \times 20 = 14$

      or $\dfrac{12}{20} + \dfrac{2}{20} = \dfrac{14}{20}$

      20 – "14"

      $1 - \dfrac{"14"}{20}$

      6   3

                          M1 for 20 ÷ 5 × 3 or 20 ÷ 10 or 12 seen or 2 seen

                          M1 dep for 20 × "14"

                          A1 cao

                          OR

                          M1 for $\dfrac{12}{20} + \dfrac{2}{20}$ or $\dfrac{14}{20}$ or sight of $\dfrac{7}{10}$

                          M1 dep for $1 - \dfrac{"14"}{20}$ or $1 - \dfrac{7}{10}$ or $\dfrac{3}{10}$ seen

                          A1 cao

                          (SC B2 for 14 seen)

                                                               [3]

76.   (a) $^{37}/_{100}$ 1

               B1 cao

       (b) $^{37}/_{100} \times 415$ 2

               = £153.55

                        *M1 for $^{37}/_{100} \times 415$ **or***

                        for attempt at build up method for 3 × 10% + 5% + 2%

                        A1 cao

                                                                [3]

77.   (a)   15   1

               B1 cao

       (b) $\dfrac{35}{100} = \dfrac{7}{20}$ 2

                        B2 for $\dfrac{7}{20}$ (B1 for $\dfrac{35}{100}$ seen)

                                                               [3]

78. $\dfrac{4}{5}$ 2

M1 for shading either 16 squares or 15 squares

or for $\dfrac{4}{5}$ *= 80% or 0.8 or* $\dfrac{16}{20}$

or for $\dfrac{3}{5}$ *= 75% or 0.75 or* $\dfrac{15}{20}$

A1 for $\dfrac{4}{5}$ *with reasons **and** correct working or shading for **both***

fractions.

[2]

79. B

[1]

80. C

[1]

81. D

[1]

82. (a)   3 : 1   1

B1 cao

   (b) $\dfrac{5}{8}$ 2

B2 for 5/8

(B1 for a/8 with a < 8 or $\dfrac{5}{b}$ *with b > 5)*

[3]

83. (a)   6   1

B1 cao

(b) $3 \times (20 \div 4)$ 2
       15

M1 for $3 \times (20 \div 4)$ oe or $\dfrac{60}{4}$ or 5 seen

A1 for 15 cao

[3]

84. $29 - 16 = 13$
         13/29   2

M1 for $\dfrac{x}{29}$ or $29 - 16$ or 13 seen
A1 for 13/29

[2]

85. $200 \div 5 \times 3$
         120   2

M1 for $200 \div 5$ (= 40) or 200×3 (= 600) or 200×0.6
A1 cao

[2]

86. (a)   24%   1

B1 cao

(b)   70%   1

B1 cao

(c)   25%   1

B1 cao

(d)   35   1

B1 for $\dfrac{3}{5}$ oe

(e)   7/200 oe   2

M1 for 200 seen
A1 for 7/200 oe

[6]

87. (a)   20 ÷ 5 = £4 per watch   2
              £32
              M1 for £20 ÷ 5 or 4 seen, or £20 × 8 or 160 seen.
              A1 for £32

      (b)   60÷3 = 20   2
            20×2 = 40
            40
            M1 for 60÷3 or 60 × 2 or sight of 20 or 120   A1 cao

                                                                      [4]

88. $\dfrac{2}{5}$ 2

                    B2 for $\dfrac{2}{5}$

                    (B1 for $\dfrac{a}{5}$ *or* $\dfrac{2}{b}$ *)*

                                                                      [2]

89.   E

                                                                      [1]

90. (a)   0.25   1
              B1 cao

      (b)   5   1
            B1 cao

                                                                      [2]

91.   C

                                                                      [1]

92.   C

                                                                      [1]

93. (a) 25   1

B1 for 25 cao

(b) 0.2   1

B1 for 0.2 cao

(c) $\dfrac{27}{100}$ 1

B1 for $\dfrac{27}{100}$ cao

[3]

94. (a) 0.9   1

B1 for 0.9

(b) 75   1

B1 for 75 cao

(c) $\dfrac{23}{100}$ 1

B1 for $\dfrac{23}{100}$ o.e.

(d) 10   1

B1 for 10 cao

[4]