1.

(a) (i) Write down in words the number 67 530.

.....

[1]

(ii) Write down in figures the number eight thousand and thirty four.

.....

[1]

(b) Using the following list of numbers,

25 13 31 64 40 49 39 11 42

write down

(i) two numbers that add up to 80,

.....

[1]

(ii) the number that is the difference between 59 and 70,

.....

[1]

(iii) a multiple of 6,

.....

[1]

(iv) a factor of 100,

.....

[1]

(v) the square of 8,

.....

[1]

(vi) an odd number that is not a prime number nor a perfect square.

.....

[1]

(c) Write 6753

(i) correct to the nearest 100,

.....

[1]

(ii) correct to the nearest 1000.

.....

[1]

2.

(a) (i) Write down, in figures, the number three million, four hundred and eleven thousand and two. [1]

.....

(ii) Write down, in words, the number 72 065. [1]

.....

(b) Using the following list of numbers

17 6 53 40 63 36 39 81

write down

(i) two numbers that add up to 80, [1]

.....

(ii) the number that is the difference between 67 and 28, [1]

.....

(iii) a multiple of 7, [1]

.....

(iv) the answer when 48 is divided by 8, [1]

.....

(v) the square of 9. [1]

.....

(c) Write down a factor of 96 which is between 10 and 20. [1]

.....

(d) Write 6571

(i) correct to the nearest 10, [1]

.....

(ii) correct to the nearest 100. [1]

.....

3.

(a) (i) The population of a town is nineteen thousand, five hundred and twenty six.
Write this in figures.

.....

[1]

(ii) The population of another town is 30 054.
Write this number in words.

.....

[1]

(b) Using only the numbers in the following list,

32 29 48 57 38 47 35

write down

(i) two numbers that have a sum of 70,

.....

[1]

(ii) the number which is the difference between 84 and 27,

.....

[1]

(iii) a multiple of 7.

.....

[1]

(c) Write 36 826

(i) correct to the nearest 100,

.....

[1]

(ii) correct to the nearest 10.

.....

[1]

(d) Using only numbers between 40 and 50, write down

(i) all the numbers that have 6 as a factor,

.....

[2]

(ii) a square number.

.....

[1]

4.

Susan bought some Christmas items in the January sales.

(a) Complete her bill. [4]

Item	Cost
5 packs of Christmas cards at £1.20 per pack	£
4·5 metres of tinsel at 82p per metre	£
40 tree decorations at £1 for 10 decorations	£
Total	£

(b) A special offer gives one free roll of Christmas wrapping paper with every £5 spent.
How many free rolls of wrapping paper will Susan receive? [1]

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(c) Christmas tree lights were priced at £11.98 before the sale.
In the sale, the price is reduced by 50%.
How much will Susan have to pay if she buys the Christmas tree lights in the sale? [2]

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5. Jamie was buying fireworks for a bonfire party.

(a) Complete his bill. [3]

Items	Cost
2 "Shining Star" rocket selection packs at £24.99 each	£
5 packs of sparklers at 89 pence per pack	£
1 "Fantastic Fireworks" selection box	£
Total	£88.43

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(b)

When Jamie was in the shop buying fireworks, he noticed the special deal shown above.
He wanted to get a free Roman Candle.
He decided to buy some extra fireworks that cost £4 each.
What was the least number of these fireworks he needed to buy to get a free Roman Candle? [2]

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6.

(a) Hilary visits a garden centre.
She buys a wheelbarrow, 5 large pots and 12 bags of compost.

Complete the following table to show her bill for these items.

ITEM	COST
1 wheelbarrow	£76.99
5 large pots @ £6.35 each	
12 bags of compost @ £3 per bag	
TOTAL	

[3]

(b) She earns 1 point on her store card for every £10 she spends.

How many points will be added to Hilary's store card after paying the above bill?

.....

[1]

7. Find the value of

(a) $\frac{43{\cdot}73 \times 26{\cdot}23}{523{\cdot}9 - 26{\cdot}74}$, giving your answer correct to three significant figures,

.....

[2]

(b) $\sqrt{\left(43^3 \div 52\right)}$, giving your answer correct to two decimal places.

.....

[2]

8.

Write 57·3826

(a) correct to the nearest whole number, [1]

.....

(b) correct to one decimal place. [1]

.....

9.

Annya lives in Sheffield.
She needed to be at a meeting at a hotel in Leeds at 3:00 p.m.

In planning her journey, she allowed herself 45 minutes to travel from the station at Leeds to the hotel.
She wanted to catch the latest possible train from Sheffield to be sure of arriving at the hotel in Leeds in time.

Part of the train timetable she used is shown below.

Sheffield (depart)	12:28	13:21	13:36	14:17	14:28
Leeds (arrival)	13:59	14:02	14:47	15:18	15:59

Annya caught the train she wanted, and the train arrived at Leeds station on time.
It took a total of 25 minutes for her to find a taxi and to travel from the station to the hotel.

Calculate the total time taken between Annya departing from Sheffield and arriving at the hotel in Leeds. [4]

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Time taken = ...

10.

The table shows typical ranges for fares and journey times for London taxis.

London Taxis		Tariff 1	Tariff 2	Tariff 3
Distance (up to)	Approximate journey time	Monday to Friday 06:00 to 20:00	Monday to Friday 20:00 to 22:00 Saturday and Sunday 06:00 to 22:00	Every night 22:00 to 06:00
1 mile	6 - 13 mins	£5.60 - £8.60	£5.60 - £8.80	£6.60 - £8.80
2 miles	10 - 20 mins	£8.40 - £13.40	£8.80 - £13.60	£10.20 - £14.40
4 miles	16 - 30 mins	£15 - £21	£16 - £22	£17 - £27
6 miles	28 - 40 mins	£23 - £28	£28 - £31	£28 - £32

Example:
A journey of 5 miles at midnight would cost between £28 and £32, depending on the length of time of the journey.

Use the table to answer the following questions.

(a) Peter hires a taxi on a Thursday at 10:25 a.m. for a journey of 2 miles.
What is the least amount he should be charged and what would be the earliest time he would get there? [2]

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Least amount charged ..... Earliest time .....

(b) Joanna and her 4 friends are out together on a Friday at 23:30 p.m.

They are staying at the same hotel, which is about $3\frac{1}{2}$ miles away.

They could hire a taxi or they could buy tickets on the underground tube costing £4 each.
For the 5 friends, explain how it is possible that hiring a taxi might

- save money, or
- cost more money.

You must show all your working for both of these possibilities. [4]

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11.

Drinks are sold from a van parked outside an office block.

The following signs are shown alongside the van.

OPEN

Monday	8:00 a.m. – 2:00 p.m.
Tuesday	8:00 a.m. – 2:00 p.m.
Wednesday	8:00 a.m. – 6:00 p.m.
Thursday	8:00 a.m. – 2:00 p.m.
Friday	8:00 a.m. – 2:00 p.m.
Saturday	9:00 a.m. – 1:30 p.m.
Sunday	Closed

PRICES

	Small	Medium	Large
TEA	80p	£1.00	£1.15
COFFEE	£1.00	£1.20	£1.45
JUICE	£1.10	£1.30	£1.55

(a) On which day is the van open later than usual?

.....

[1]

(b) For how long is the van open to sell drinks on a Monday?

..... hours.

[1]

(c) How much would you have to pay altogether for a small tea and a large coffee?

.....

.....

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[2]

12.

(a) Calculate the cube root of 125. [1]

.....

(b) Calculate the value of 1·4 cubed. [1]

.....

(c) Find the value of $\sqrt{25{\cdot}3} + 2{\cdot}3^2$. Write down your answer to 1 significant figure. [2]

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(d) Find the value of $\sqrt{\frac{3}{4{\cdot}2^2 - 3}}$, giving your answer correct to two decimal places. [2]

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(e) Solve the inequality $5x + 3 > 18$. [2]

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13.

Find the exact value of each of the following.

(a) $5{\cdot}6^2$ [1]

.....

(b) 4 to the power of 5 [1]

.....

(c) the square root of 28·09 [1]

.....

14.

Showing all your working, write $\frac{1}{2}$, $\frac{3}{8}$ and $\frac{3}{4}$ in ascending order. [3]

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15.

Karim painted a fence.

On Monday, he painted $\frac{7}{10}$ of the fence.

On Tuesday, he painted another $\frac{1}{5}$ of the fence.

On Wednesday, he finished painting the fence.

What fraction of the fence did Karim paint on Wednesday? [3]

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16.

(a) Use equivalent fractions, with a common denominator, to write $\frac{3}{4}$, $\frac{7}{12}$, $\frac{5}{6}$ and $\frac{2}{3}$ in order with the **smallest** first.
You must show all your working.

[3]

(b) In a school $\frac{3}{5}$ of the pupils are girls.
There are 390 girls in the school.
Calculate the total number of pupils in the school.

[3]

17.

(a) Find 23% of £52. [2]

(b) Find $\frac{4}{9}$ of 243. [2]

18.

(a) Find $\frac{3}{4}$ of 156.

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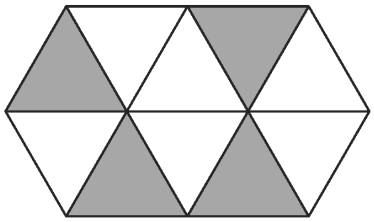
[2]

(b)



(i) What percentage of the shape above is shaded?

.....

[1]

(ii) What percentage of the shape above is NOT shaded?

.....

.....

[1]

(c)

6 : 3	$\frac{2}{6}$	20 : 5	$\frac{3}{4}$
$\frac{5}{20}$	4 : 16	$\frac{4}{12}$	7 : 28

From the table above, select

(i) two **fractions** that are equivalent to $\frac{1}{3}$.

.....

.....

[2]

(ii) two **ratios** that are equivalent to 1 : 4.

.....

.....

[2]

19. Complete the following table.

Fraction	Decimal	Recurring decimal? Yes or No	Terminating decimal? Yes or No
$\frac{2}{5}$			
$\frac{5}{8}$			
$\frac{7}{9}$			
$\frac{2}{11}$			

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[4]

20. Calculate the value of $\frac{3}{8}$ as a decimal. [2]

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21. Calculate each of the following.

(a) 892 – 506 [1]

(b) 267 × 15 [3]

(c) 5 × 0·7 [1]

(d) 0·3 × 0·2 [1]

(e) 15 – 4 × 3 [1]

(f) 20 ÷ (4 + 1) [1]

22. *(a)* Arrange the following in ascending order. [1]

0·75 0·5 0·07 0·507

.....

(b) Express each of the following as eighths. [3]

(i) $\frac{1}{4} = \frac{\quad}{8}$

(ii) $\frac{1}{2} = \frac{\quad}{8}$

Now, write $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{8}$ in order, starting with the **largest**.

.....

23. *(a)* Find 67% of £234. [2]

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.....

(b) Find $\frac{2}{11}$ of 242 g. [2]

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.....

(c) **Showing all your working**, write 24%, 0·3 and $\frac{1}{4}$ in ascending order. [3]

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24. *(a)* Complete the following table to show equivalent fractions, decimals and percentages.

Fraction	Decimal	Percentage
	0·75	
$\frac{3}{10}$		

[4]

(b) Find 42% of 630.

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.....

[2]

(c) Find $\frac{3}{7}$ of 364.

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[2]

25. **Showing all your working**, write 76%, 0·7 and $\frac{3}{4}$ in descending order. [3]

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26. Given the following information, complete the Venn diagram shown below.

- $\varepsilon = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$
- **A** is the set of factors of 24
- **B** is the set of multiples of 3
- **C** is the set of common factors of 30 and 70

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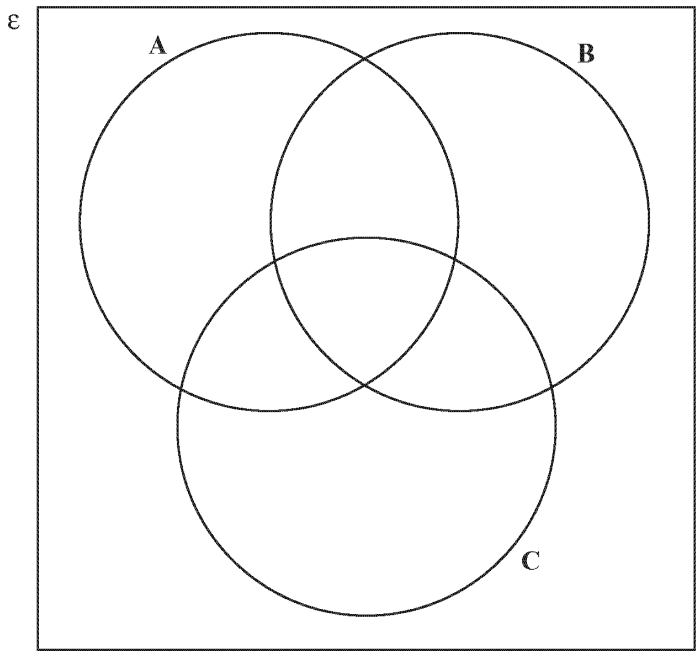

[4]

27.

The universal set, $\varepsilon = \{22, 23, 24, 25, 26, 27, 28, 29, 30\}$.

Within this universal set ε,

- set A is the multiples of 2
- set B is the multiples of 4
- set C is the multiples of 5

(a) Complete the Venn diagram. [3]

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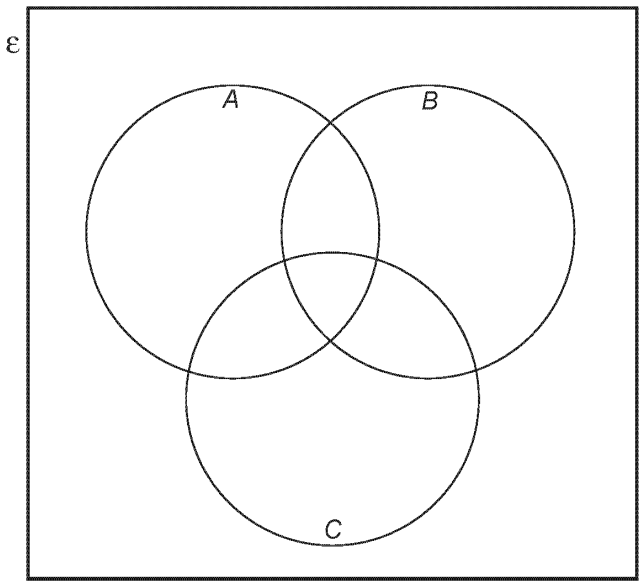
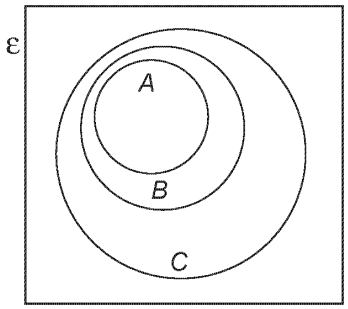
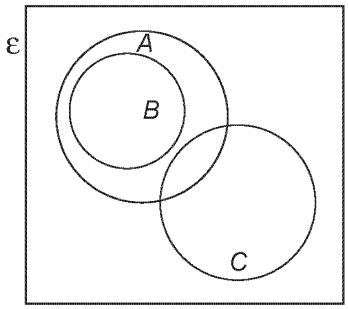


(b) Which one of the following Venn diagrams could also be used to represent the sets ε, *A*, *B* and *C*?
You must give a reason for your choice. [2]

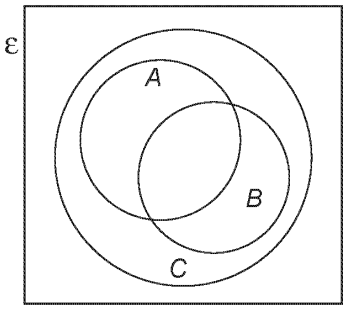
Venn Diagram 1



Venn Diagram 2



Venn Diagram 3



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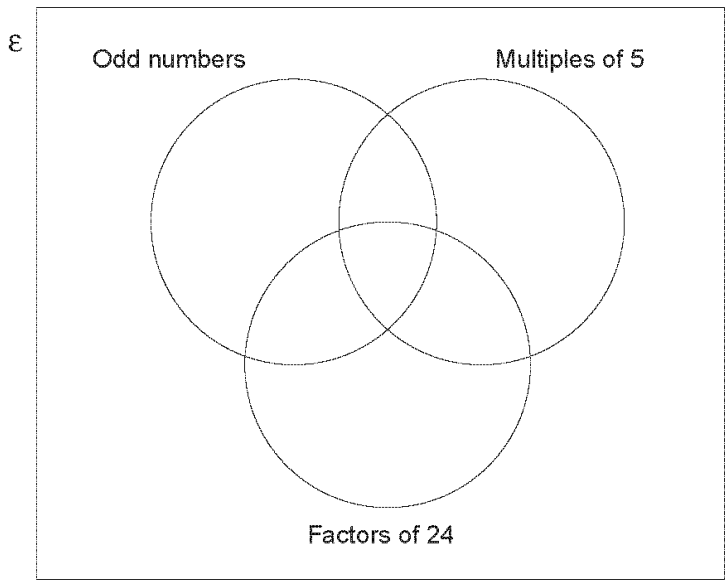
28.

(a) Place the whole numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 in the correct positions in the Venn diagram. [3]



(b) A whole number is selected at random from the set {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}.

Find the probability that the number selected is:

an odd number .....

an odd number that is a factor of 24 .....

not a multiple of 5 and not a factor of 24. ..... [3]

29.

(a) Geoff changed £1200 into US dollars ($), when the rate of exchange was £1 = $1.52.
How many dollars did he get? [2]

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(b) During his stay, Geoff spent $1649 altogether. On his return, he changed his remaining dollars back into pounds, at the same exchange rate.
How much did he receive in pounds? [2]

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30.

Sally went on a trip to South Africa.

(a) Before departing, she exchanged £480 into rand.
The exchange rate was £1 = 13·25 rand.
How many rand did Sally receive? [2]

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.....

(b) Before departing, she also paid £52 for a safari tour in South Africa.
This tour would have cost her 795 rand if she had paid for it on the day of the tour.
Using the same exchange rate, calculate the difference **in pounds** between these two prices. [3]

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31.

Shafira went on a trip to New York.

(a) She changed £800 into dollars ($) when the exchange rate was £1 = $1.57.
How many dollars did she receive?

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[2]

(b) In New York she bought a coat for $199.
Using the same exchange rate, calculate the cost of this coat, giving your answer **to the nearest pound**.

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[3]

32.

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

A band was hired to play at the local hall.

The hall was hired for 4 hours at a cost of £20 per hour.
The band cost £150 to hire.
Tickets for the event cost £5 each and 128 tickets were sold.

Calculate how much money was spent, how much money was collected and the profit or loss made on the event.

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33.

Jenny runs a stall at the local Farmers' Market.

One week, she made 20 fruit cakes and 15 chocolate cakes to sell on the stall.

She planned to sell the fruit cakes at £6 each and the chocolate cakes at £2 each.

The cost of making each type of cake was half of the normal selling price.

She sold $\frac{3}{4}$ of the fruit cakes at full price and decided to sell the rest of them at 70% of the normal selling price.

She sold 13 of the chocolate cakes at full price and the rest at half price.

How much profit did Jenny make?

You must show all your working. [6]

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

Tim owns a clothes shop.
He buys 60 shirts at £8 each.

The selling price of each shirt is worked out so that he makes a profit of 50% on each shirt.
He sells 15 shirts at this price.

After a few months Tim reduces the selling price of each shirt by £5.
He then sells the remaining shirts at this reduced selling price.

Has Tim made a profit or loss?
You must explain your answer clearly. [8]

35.

Claudia was given the following information.

UK Income Tax

April 2013 to April 2014

taxable income = gross income – personal allowance

- personal allowance is £9205
- basic rate of tax: 20% on the first £32 255 of taxable income
- higher rate tax: 40% is payable on all taxable income over £32 255

During the tax year 2013 to 2014, Claudia's gross income was £52 250.

Calculate the total amount of tax that Claudia should pay.
You must show all your working. [6]

36.

Ashley earns £6.50 per hour in her job at a local shop.

(a) How much will she earn for working 8 hours on a Saturday?

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[2]

(b) One week she works on a Bank Holiday Monday and earns double her usual rate.
If she works for 5 hours, how much will she earn?

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[3]

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

Ashley usually works 32 hours a week at £6.50 per hour.

She pays one tenth of her weekly earnings in tax and national insurance.
She gives £50 of her weekly earnings to her family for her room and food.
She spends £60 a week on socialising, clothing and other things.
She saves the rest of her weekly earnings.

Ashley wants to book a week's holiday to Portugal costing £439.
How many weeks will it take her to pay for her holiday?

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[7]

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

Karen has the following information for the last financial year.

Taxable income = Total income received – Personal allowance Tax rates: 20% of taxable income up to £35 000 40% of taxable income over £35 000

- Her total income for the year was: £24 000 from a pension scheme
  and £20 600 from other work.
- Her personal allowance for the year was £7475.

Karen suspects that she has paid too much income tax for the last financial year.

The amount of tax Karen actually paid was 20% of her **total** income.

Check whether or not Karen's suspicion is correct.

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[9]

38.

Sale prices at P & A's Outlet Store are 40% below original prices.
On Saturdays an additional discount of 20% **off the sale price** is given.

(a) If Lorraine shops at P & A's Outlet Store on a Tuesday and buys a coat that was originally priced at £140, how much discount will she get?

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Discount = £ .....

[2]

(b) Lorraine is advised by her friend to wait until Saturday to purchase the coat.
How much will Lorraine pay for the coat on Saturday?

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[4]

39.

Mr and Mrs Jones and their four children, aged 12, 9, 7 and 4 years old, visit a toy fair.
The cost of tickets to the fair is shown on a board.

TOYS ACROSS THE AGES

Adults £15 each

Half price for children under 14 years old

Free entry for the Under 5s

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

What is the total cost of the tickets for Mr and Mrs Jones and the children to visit the toy fair?
Show all your working. [6]

(b) Mrs Jones had a voucher that gave a discount of 10% off the total cost of their tickets.
How much did they actually pay for their tickets? [2]

40.

(a) Toby buys the following items to decorate some rooms in his house. Complete his bill. [4]

Item	Cost
10 rolls of wallpaper at £14.82 each	£ 148.20
4 cartons of wallpaper paste at £7.53 per carton	£
6 tins of emulsion paint at £8.32 each	£
4 tins of gloss paint at £14.54 each	£
Total	£

(b) Toby gets a 5% discount on his bill.
How much does he pay? [3]

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(c) Toby goes to a cafe and buys a cup of tea, a sandwich and a cake.
How much change does he get from £6? [3]

Cafe	
Tea	£1.56
Coffee	£2.35
Sandwich	£2.86
Cake	98p

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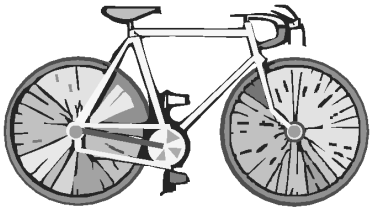
41.

Daniel wants to buy a new bicycle. It is priced at £480.



Daniel can either

- pay £480 immediately, or
- pay a 15% deposit, followed by 24 monthly payments of £22.

(a) Calculate the total amount Daniel would pay using the deposit and monthly payments method. [3]
You must show all your working.

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(b) Find the percentage increase in the cost of the bicycle when Daniel pays using the deposit and monthly payments method. [3]

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42.

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

Arwyn needs four new tyres fitted on his car and would also like a new spare tyre.
He sees two deals advertised at the garage.

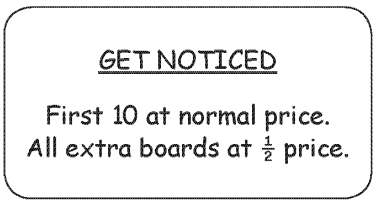
"Economy Tyres" £64 each No matter how many tyres fitted, total fitting charge £20	"Top Class Tyres" **Made to last longer!** £95 each 10% discount if you buy 4 or more tyres **Free fitting**

Arwyn has exactly enough money to buy four 'Top Class Tyres' and to have them fitted.
Does he have enough money to buy, and have fitted, four 'Economy Tyres' with a fifth tyre as a spare?
You must show all your working. [7]

43.

A school wanted to buy a number of identical wooden noticeboards.
These noticeboards normally cost £8 each.

The school found two firms, *'Boards for All'* and *'Get Noticed'*, that sell these noticeboards.
Both firms had a special offer on the normal price.



(a) The school bought 17 noticeboards from *'Boards for All'*.
How much did they pay in total? [3]

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(b) Depending on the number of noticeboards that are required, show that it can be cheaper to buy them from *'Get Noticed'*. [3]

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Marking Scheme

1.

1.(a)(i) Sixty seven thousand (and) five hundred and thirty	B1	
1.(a)(ii) 8034	B1	
1.(b) (i) 31, 49 OR 40, 40	B1	Do not accept 40 on its own.
1.(b) (ii) 11	B1	
1.(b) (iii) 42	B1	
1.(b) (iv) 25	B1	
1.(b) (v) 64	B1	B0 for 8^2
1.(b) (vi) 39	B1	
1. (c) (i) 6800	B1	
1. (c)(ii) 7000	B1	

2.

1. (a) (i) 3 411 002	B1	
1. (a) (ii) seventy two thousand **(no hundreds) (and)** sixty five	B1	
1. (b) (i) 17 and 63	B1	B0 for 40+40.
1. (b) (ii) 39	B1	
1. (b) (iii) 63	B1	
1. (b) (iv) 6	B1	Allow 48/8 = 6, 6×8=48 but B0 for 48/6 = 8
1. (b) (v) 81	B1	
1. (c) 12 or 16	B1	For 12, 16 or both. Allow 12×8 OR 16×6 **As always, B0 for a choice of answers with at least one answer incorrect**
1. (d) (i) 6570	B1	
1. (d) (ii) 6600	B1	

3.

1. (a) (i) 19526	B1	
1. (a) (ii) Thirty thousand and fifty four	B1	Ignore extra words such as 'pounds. Ignore slight misspellings.
1. (b) (i) 32, 38	B1	
1. (b) (ii) 57	B1	
1. (b) (iii) 35	B1	
1. (c) (i) 36800	B1	
1. (c) (ii) 36830	B1	
1. (d) (i) 42, 48	B1, B1	–1 for each extra incorrect number.
1. (d) (ii) 49	B1	B1 for 7×7 OR 7^2, but B0 for 7×7=wrong number. B0 for 7.

4.

1. (a) 6(.00) 3.69 4(.00) 13.69 (b) 2 (rolls) (c) 11.98÷2 or equivalent (£) 5.99 ISW	B1 B1 B1 B1 B1 M1 A1 7	 FT candidate's values for at least one B1. FT candidate's total.

5.

2015 November UNIT 3 Foundation TierMark Scheme	Mark	FINAL MARK SCHEME Comments
1. (a) (£) 49·98 (£) 4·45 (£) 34 (b) 3 (extra fireworks)	B1 B1 B1 B2 5	 FT values in the table B1 for answers that suggest an extra (£) 11·57 or more needs to be spent.

6.

1. (a) (£76.99) (£)31.75 (£)36(.00) (Total) (£)144.74 (b) 14 (points)		 B1 B1 B1 B1	 Accept 3175p. Accept 3600p F.T. their amounts. F.T. their total bill.

7.

6. (a) 2.31	B2	B1 for 2.30(71805857...) All places given must be correct.
6. (b) 39.10	B2	B1 for 39.1(02183...) All places given must be correct.

8.

2. (a) 57 (b) 57.4	B1 B1 2	

9.

June 2015 UNIT 1 Foundation	✓	Mark	Comments
5. 13:21 train from Sheffield chosen. Attempt to find time difference between 14:02 and 13:21 = 41 (min) (So total time =) 66 (min) or equivalent.	✓ ✓ ✓ ✓	B1 M1 A1 B1	May be implied in further work. F.T. for 'their chosen train' (Other trains take 1hr 31m, 1hr 11m, 1hr 1m, 1hr 31m) F.T. time for 'their train journey' + 25min. *Alternative method* *(Arrives at Leeds station) 14:02* *B1* *F.T. 'their train arrival' + 25min* *(Arrives at hotel) 14:27* *B1* *F.T. 'their times'* *Attempt to find time difference between 14:27 and 13:21* *M1* *(So total time =) 66 (min) or equivalent.* *A1*

10.

To be viewed with table 10. (a) (£) 8.40 and 10:35 **(a.m.)**	B2	B1 for each B0 for 10 minutes	
To be viewed with table 10. (b) Taxi fare is **(£)**17 - **(£)**27 Tube tickets cost **(£)**20 Compares (£)17 with (£)20 Compares (£)27 with (£)20	✓ B1 B1 B1 B1	F.T. their figures	Per person solutions **Taxi fare is (£)17 - (£)27** **B1** **Divides any taxi fare by 5** **B1** **Compares (£)3.40 with (£)4** **B1** **Compares (£)5.40 with (£)4** **B1** **2 taxis (Maximum 3 marks available)** **Taxi fare is (£)34 - (£)54** **B1** **Tube tickets cost (£)20** **B1** **Taxi (always) more than tube** **B1**

11.

1. (a) Wednesday (b) 6 (hours) (c) (£)0.8(0) + (£)1.45 OR 80(p) + 145(p) = (£)2.25 or 225(p)	B1 B1 M1 A1 4	

12.

14. (a) 5 (b) 2.744 (c) 10 (d) 0.45 (e) 5x>15 x>3	B1 B1 B2 B2 M1 A1 8	 B1 for 10.3(199…) B1 for 0.45267… rounded or truncated CAO

13.

5. (a) 31.36 (b) 1024 (c) 5.3	B1 B1 B1 3	

14.

10. For 2 correct in a form which allows comparison For all 3 correct in a form which allows comparison 3/8, ½, ,¾	B1 B1 B1 3	 Answer only gets B1. CAO

15.

8. 7/10 + 2/10 or equivalent 9/10 or equivalent 1/10		M1 A1 B1	Fractions must have a common denominator FT 'their derived 9/10' *Alternative – using a length:* *Finding 7/10 and 1/5 of a length AND adding them* *M1* *Correct answer to addition* *A1* *Final answer of 1/10* *B1*

16.

8. (a) For all 4 correct as fractions that allows comparison 7/12, 2/3, ¾ , 5/6 or equivalent fractions (e.g. 7/12, 8/12, 9/12, 10/12) (b) 390 ÷ 3 .... × 5 650	M2 A1 M1 m1 A1 6	Award M1 for any two correct in a fraction that allows comparison *If no marks awarded, award SC1 for correct order without using equivalent fractions* Accept in either order × 5 ÷ 3. Award M1 for sight of 130 or 1950 CAO

17.

8. (a) 23/100 x 52 =(£) 11.96 (b) 4/9 x 243 = 108	M1 A1 M1 A1 4	

18.

5. (a) 3/4 × 156 117 (b) (i) 40(%) (ii) 60(%) (c) (i) 2/6 and 4/12 (ii) 4 : 16 and 7 : 28	M1 A1 B1 B1 B2 B2 8	Or equivalent FT 100 – 'their 40' correctly evaluated Award B1 for each. If more than 2 answers offered -1 for each incorrect answer in (i) and (ii)

19.

5.

Fraction	Decimal	Recurring	Terminating
2/5	0.4	No	Yes
5/8	0.625	No	Yes
7/9	0.77(777..) or 0.78	Yes	No
2/11	0.18(18..)	Yes	No

B4

4

All correct
B3 any 3 rows correct or all 4 decimals correct
B2 any 2 rows correct or 3 decimals correct
B1 any 1 row correct or 2 decimals correct

Accept unambiguous intention for Yes/No columns
Accept if candidate indicates yes without giving the corresponding no, unless there is a contradiction, and vice versa

20.

12. (3/8) = 8)3.000 **(0).375 ISW**	M1 A1	Any valid method. Must show a division method being implemented **M0, A0 for unsupported (0).38**

21.

4. (a) 386	B1	
(b) 267 15 x	M1	Any correct method for multiplying 267 by 15
2670 OR 3000 1335 900 4005 105 4005	A1	For either 2670 or 1335 OR 3000 or 900 or 105 (Apply 'one error' in other methods)
	A1	CAO Place value errors get M0 A0
(c) 3.5	B1	
(d) 0.06	B1	
(e) 3	B1	
(f) 4	B1	
	8	

22.

7. (a) 0.07, 0.5, 0.507, 0.75	B1	
(b) (i) 2(/8)	B1	
(ii) 4(/8)	B1	
½, 3/8, ¼	B1	CAO. Accept 4/8, 3/8, 2/8.
	4	

23.

6. (a) 67/100 × 234 =(£) 156.78	M1 A1	Or equivalent
(b) 2/11 × 242 = 44 (g)	M1 A1	Or equivalent
(c) For 2 correct in a form which allows comparison For all 3 correct in a form which allows comparison 24%, ¼, 0.3	B1 B1 B1 7	Eg 1\4 = 25% = 0.25 Or equivalent Answer only gets B0, B0, B1

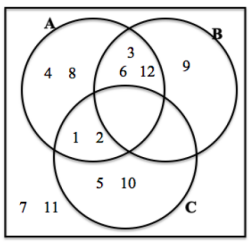
24.

3. (a) ¾ | | 75(%) | 0.3(0) | 30(%)	B2 B2	Accept equivalent fractions for ¾ . Ignore incorrect simplification of 75/100. Do not accept 7.5/10.
(b) 42/100 × 630 264.6(0) (c) 3/7 × 364 156	M1 A1 M1 A1 8	CAO Or equivalent CAO

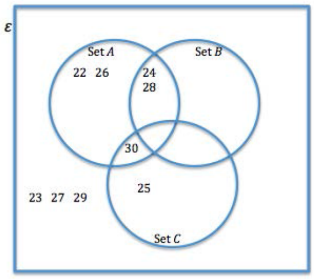
25.

9. For 2 correct in a form which allows comparison For all 3 correct in a form which allows comparison 76%, ¾ , 0.7	B1 B1 B1 3	

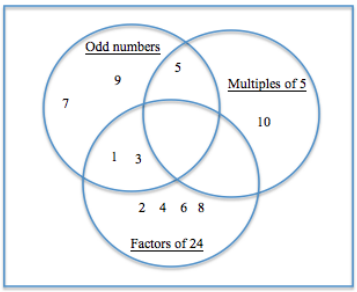
26.

3. Venn diagram correct  	B4 4	No extra number >12 Mark unique placements of numbers, for duplicates mark the incorrect number then award as follows: B3 for any 9, 10 or 11 numbers correctly placed with no more than 1 extra number >12 B2 for any 6, 7 or 8 numbers correctly placed with no more than 2 extra numbers >12 B1 for any 3, 4 or 5 numbers correctly placed and ignore any extra numbers If no marks awarded SC1 for sight of sets A, B and C correct (including any extra numbers), shown in working or within Venn diagram

27.

17(a) All 9 numbers placed correctly  	B3	B2 for any 7 or 8 numbers placed correctly, the other numbers omitted or incorrectly placed, OR B1 for any 5 or 6 numbers placed correctly, the other numbers omitted or incorrectly placed. *Any ambiguous duplicates are marked as an incorrect placement for that number*
(b) Venn diagram 2 AND full reason, e.g. 'multiples of 4 are a subset of multiples of 2 and there is a multiple of 2 which is a multiple of 5', or 'set B is a subset of set A, and set A intersects with set C', or 'A & B share some of the numbers, but C only shares numbers with A', or 'C & B have nothing in common, and B shares everything with A'	E2	OR selects Venn diagram 2 and explains why the other 2 Venn diagrams are not selected E1 for choice of Venn diagram 2 AND a partial reason, i.e. only mentions 1 aspect or attempts an explanation e.g. '4 times table is within 2 times table', or 'shows which of A are within 4 times table', or '22 is in A but not in C', or 'no multiples of 4 in C' OR E1 for selection of Venn diagram 2 and explains why 1 of the other 2 Venn diagrams are not selected *Accept informal words such as 'within' for 'subset', 'overlap' for 'intersection'*
	5	

28.

Methods in Mathematics June 2015 Unit 1 Foundation Tier	Mark	Comments
11. (a)  	B3	Penalise any extra numbers (e.g. >10), -1 only B2 for 8 or 9 of the numbers placed correctly, marking any repeats as incorrect, OR B1 for 5, 6 or 7 of the numbers placed correctly, marking any repeats as incorrect
(b) 5/10 ISW 2/10 ISW 2/10 ISW	 B1 B1 B1	Accept equivalents throughout CAO Now FT consistent incorrect denominator: OR FT from their Venn diagram. OR FT from their Venn diagram
	6	If no marks in (b) award SC1 for 5, 2 and 2 or identifying the correct regions by listing the correct numbers *Penalise incorrect notation once only, -1*

29.

Parts (a) & (b) marked at the same time 12. (a) (Number of dollars =) 1200 × 1.52 = ($) 1824 ISW	M1 A1	 $ not required but £ gets A0.
(b) (1824 – 1649) ÷ 1.52 OR 175 ÷ 1.52 = (£)115.13 ISW	M1 A1	F.T. 'their ($)1824' £ not required but $ gets A0. Accept (£)115 but A0 for (£)115.1

30.

9(a) 480 × 13·25 = 6360 (rand) (b) 795 ÷ 13·25 = (£)60 (A difference of) (£)8	M1 A1 M1 A1 A1 5	 F.T. 'their (£)60' – (£)8. *Alternative method.* *795 – (52 × 13·25) M1 (106 rand gains M1)* *÷ 13·25 m1* *= (£)8 A1*

31.

9. (a) 800 × 1·57 = ($)1256	M1 A1	
9. (b) (Cost of coat =) 199 ÷ 1·57 = (£)126.7(5...) (To nearest pound =) (£)127	M1 A1 A1	 F.T. their amount.

32.

6. (Hire of hall) 4 × (£)20 = (£)80 (Total cost =) (£)230 128 × (£)5 (Income =) (£)640 (Profit =) (£)640 – (£)230 = Profit of (£)410	M1 A1 A1 M1 A1 M1 A1	 F.T. 150 + 'their 80'. F.T. their values. Must indicate 'Profit' (or 'Loss' if so on F.T.).
Look for • spelling • clarity of text explanations, • the use of notation (watch for the use of '=', £ being appropriate) QWC2: Candidates will be expected to • present work clearly, with words explaining process or steps AND • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer QWC1: Candidates will be expected to • present work clearly, with words explaining process or steps OR • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer	QWC 2	QWC2. Presents relevant material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC1. Presents relevant material in a coherent and logical manner, but with some errors in use of mathematical form, spelling, punctuation or grammar. OR Evident weakness in organisation of material but using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC0. Evident weakness in organisation of material and errors in use of mathematical form, spelling, punctuation and grammar

33.

11. Method 1 (total profit = total selling price – total cost price) (Money taken for full-price fruit cakes =) ¾ × 20 × (£)6 (= (£)90) (Money taken for reduced-price fruit cakes =) 5 × 0.7 × (£)6 (= (£)21) (Total money taken for chocolate cakes =) 13 × (£) 2 + 2 × (£)1 (= (£)28) (Total cost =) 20 × (£)3 + 15 × (£)1 (= (£)75) (Profit =) (£) [90 + 21+ 28] – (£)75 = (£) 64 OR Method 2 (total profit = fruit cake profit + chocolate cake profit) (Full-price fruit cake profit =) ¾ × 20 × (£)6 – ¾ × 20 × (£)3 OR ¾ × 20 × (£)(6 – 3) (= (£)45) (Reduced-price fruit cake profit =) 5 × 0.7 × (£)6 – 5 × (£)3 OR 5 × (0.7 × (£)6 – (£)3) (=(£)6) (Full-price chocolate cake profit =) 13 × (£)2 – 13 × (£)1 OR 13 × (£)(2 – 1) (=(£)13) (Reduced-price chocolate cake profit = 0) (Total profit =) (£) [45 + 6 + 13 (+0)] = (£) 64	B1 B1 B1 B1 M1 A1 OR B1 B2 B1 M1 A1 6	Or equivalent e.g. (£) 0.60 × 5 × 7. FT from 'their ¾ × 20' Consideration of '+ 2 × (£)1' can be implicit FT provided at least B2 awarded CAO B1 for sight of 5 × 0.7 × (£)6 or (£)1.20 FT from 'their ¾ × 20' FT provided at least B2 CAO

34.

2015 Summer Linear Paper 1 (Non calculator) Foundation Tier	Marks	Comments
11. (60 shirts at £8 each, 60×8 = £) 480 (Selling Price for profit of 50% = £) 12 (15 shirts at £12 **= 15×12** = £) 180 (Reduced selling price **= 12 – 5** = £) 7 (45 shirts at £7 **= 45 × 7** = £) 315 Having the (£)495 and (£)480 and stating 'profit' OR (£)15 profit Alternative method using 'Profit' Considers profit on full price shirt AND loss on reduced price shirt. (Profit on one shirt = 50% of £8 = £) 4 (Profit on 15 shirts = 15 x 4 = £) 60 (Loss on one shirt = £5 - £4 = £) 1 (Loss on 45 shirts = 45 x £1 = £) 45 Having the (£)60 and (£)45 and stating 'profit' OR (£)15 profit	✓ B1 B1 B1 B1 B1 B1 S1 B1 B1 B1 B1 B1	F.T. 'their £12' **but NOT £8 for this B1 ONLY** F.T. 'their £12' F.T. 'their £7' Correct conclusion on their figures **Do not penalise an incorrect evaluation of their profit** F.T. 'their £4' F.T. 'their £4'. **Could also be profit of '–(£)1' etc** F.T. 'their £1' Correct conclusion on their figures **Do not penalise an incorrect evaluation of their profit**
Look for • spelling • clarity of text explanations, • the use of notation (watch for the use of '=', £ being appropriate) QWC2: Candidates will be expected to • present work clearly, with words explaining process or steps AND • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer QWC1: Candidates will be expected to • present work clearly, with words explaining process or steps OR • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer	QWC 2	QWC2 Presents relevant material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC1 Presents relevant material in a coherent and logical manner but with some errors in use of mathematical form, spelling, punctuation or grammar . OR Evident weaknesses in organisation of material but using acceptable mathematical form, with few if any errors in spelling, punctuation and grammar. QWC0 Evident weaknesses in organisation of material, and errors in use of mathematical form, spelling, punctuation and grammar.

35.

16. Taxable income (52250 – 9205=) (£)43045 40% tax to be paid on (£)10790 0.2 × 32255 (=6451) 0.4 × 10790 (=4316) (£) 6451 AND (£)4316 Claudia's tax should be (£)10767	B1 B1 M1 M1 A1 A1	 FT 'taxable income' – 32255, i.e. 'their 52250 -9205' – 32255 correctly evaluated FT 0.4 × ('their 43045' – 32255) provided 'their 43045' > 32255, also FT (52250 – 32255 =) giving 0.4 × 19995 (=7998) FT sum of 'their 6451' + 'their 4316' provided at least 1 of these values is correct and M2 awarded *(Note: 6451 + 7998 = 14449)*

36.

3.(a) 8 × 6.50 (£)52	M1 A1	
(b) (6.50 × 2 × 5 (£)65	M2 A1	Award M1 for either 6.5(0) × 2 or 6.5(0) × 5 OR Award M1 5 × 2 = 10 hours M1 10 × 6.5(0) A1 (£)65
(c) earnings (32 × 6.50=) (£)208 Tax &NI (1/10 of 208=) (£)20.8(0) Total outgoings (20.8(0) + 50 + 60=) (£)130.8(0) Has left (208 – 130.8(0)=) (£)77.2(0) Number of weeks (439 ÷ 77.2(0)= 5.68...) 6 weeks needed	B1 B1 B1 B1 B1	CAO FT their 208 FT their 20.8(0) FT their 130.8(0) FT their 77.2(0) <u>Alternative method</u> Earnings = 208 **B1** Tax = 20.80 **B1** (208 – 20.80 =)187.20 **B1** Has left 77.20 **B1** FT 187.20 – 50 - 60 Number of weeks = 6 weeks **B1** FT their 77.2(0) *If no tax & NI Award* *B1 for 208, B0, B0, B1 for (208 – 110 =) 98, B1 for (439 ÷ 98=) 5 weeks*
For QWC Look for • spelling • clarity of text explanations • the use of notation (watch for the use of '=', '£' being appropriate) Notes: QWC2 requires words throughout the response not just connected to the final answer. QWC2: Candidates will be expected to • present work clearly, with words explaining process or steps AND • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer QWC1: Candidates will be expected to • present work clearly, with words explaining process or steps OR • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer	Q W C 2 12	QWC2 Presents relevant material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC1 Presents relevant material in a coherent and logical manner but with some errors in use of mathematical form, spelling, punctuation or grammar OR evident weaknesses in organisation of material but using acceptable mathematical form, with few if any errors in spelling, punctuation and grammar. QWC0 Evident weaknesses in organisation of material, and errors in use of mathematical form, spelling, punctuation or grammar.

37.

6. (Total income =) (£)44600 (Taxable income =) (£)37125 A correct method of finding 20% or 40% of a relevant value. (Tax due =) (£) 850 (+ 7000) = (£)7850. (Tax paid =) (£)8920 AND a correct statement for their amount Look for • spelling • clarity of text explanations, • the use of notation (watch for the use of '=', £ , % being appropriate) QWC2: Candidates will be expected to • present work clearly, with words explaining process or steps AND • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer QWC1: Candidates will be expected to • present work clearly, with words explaining process or steps OR • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer	✓ ✓ ✓ ✓ ✓ ✓ ✓	B1 B1 M1 A1 A1 A2 QWC 2	F.T. 'their total income' – 7475. F.T. 40% of ['their 37125' – 35000]. F.T. 'their 850' + 'their 7000'. F.T. 20% of 'their 44600'. OR showing £7850 to be 17·6% of £44600. A1 if no statement or an incorrect statement. QWC2. Presents relevant material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC1. Presents relevant material in a coherent and logical manner, but with some errors in use of mathematical form, spelling, punctuation or grammar. OR Evident weakness in organisation of material but using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC0. Evident weakness in organisation of material and errors in use of mathematical form, spelling, punctuation and grammar.

38.

6. (a) 40/100 × 140 (£)56 (b) coat on Tuesday costs (140 – 56 =) (£)84 20/100 × 84 (£)16.8(0) Coat costs (84 – 16.80=) (£)67.2(0)	M1 A1 B1 M1 A1 B1 6	Answer of (£)84 in this part gets M1 A0 FT 'their 56.' *Award this B1 if shown in part (a)* *Alternative method 80/100 × 84 M2* *=(£)67.2(0) A1* FT 'their 84 and 16.80' if at least M1 awarded in (a) or (b) *If no marks awarded in (b)* *Award SC2 for an answer of 112* *Or Award SC1 for sight of 28 or for 1 slip in workings towards answer of 112*

39.

June 2015 UNIT 1 Foundation	✓	Mark	Comments
1. **Ribbon marking for 1(a) and 1(b).** (a) (Two adult tickets = 2 × £15 =) (£)30 (One child's ticket =) (£)7.5(0) (Three child's tickets = 3 × £7.50 =) (£)22.5(0) (Total cost =) (£)52.5(0)	✓ ✓ ✓ ✓	B1 B1 B1 B1	Sight of (£)7.5(0) or may be implied in further work. F.T. 3 × 'their £7.50' , but **not** 3 × £15 F.T. 'their amounts' but not if simply £15 or £7·50. Correct answer gains B4.
Look for • spelling • clarity of text explanations and correct units shown • the use of notation (watch for the use of '=' and '+' being appropriate) QWC2: Candidates will be expected to • present work clearly, with words explaining process or steps AND • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer QWC1: Candidates will be expected to • present work clearly, with words explaining process or steps OR • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer	✓ ✓	QWC 2	QWC2. Presents relevant material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC1. Presents relevant material in a coherent and logical manner, but with some errors in use of mathematical form, spelling, punctuation or grammar. OR Evident weakness in organisation of material but using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC0. Evident weakness in organisation of material and errors in use of mathematical form, spelling, punctuation and grammar. An unsupported answer is QWC0.
Ribbon marking for 1(a) and 1(b). 1(b) (£)47.25		B2	F.T. 0·9 × 'their total cost'. B1 for (£)5.25 OR a correct evaluation of 0·1 × 'their total cost'.

40.

2015 November Paper 2 (Calculator allowed) Foundation Tier	Marks	FINAL MARK SCHEME Comments
1. (a) (148.20) 30.12 (paste) 49.92 (e paint) 58.16 (g paint)	 B1 B1 B1	
(£) 286.4(0)	B1	F.T. their figures
(b) 10% = 28.64 5% = 14.32 OR (0).05 × 286.4(0) Discount = (£) 14.32 He pays (£)272.08	M1 A1 A1	For any correct method for finding 5% F.T. 'their total'. Ignore extra decimal places. F.T. 'their total – their discount'
		Alternative: *0.95× their 286.4(0)* *M2* *He pays (£)272.08* *A1*
(c) Cost = (£)1.56 + (£)2.86 + 98(p) = (£)5.4(0) OR (£)6 – (£)1.56 – (£)2.86 – (£ 0).98	M1 A1	M0, A0 if coffee used instead of tea, but B1 is possible. F.T. 'their £5.40', but B0 if more than £6
Change = 60(p) OR (£0).6(0)	B1 10	**Accept £(0).60p** **B0 for (0).60p. Unsupported (0).60p gets M0,A0,B0**

41.

12. **Ribbon marking for 12(a) and (b)** (a) 0·15 × (£)480 or equivalent OR an attempt to calculate 24 × (£)22 (Total cost =) 0·15 × (£)480 + 24 × (£)22 or equivalent (£72 + £528 =) (£)600 (b) (Difference in price =) (£)600 – (£)480 OR (£)120 (Percentage increase =) 120/480 × 100% or equivalent 25%		M1 M1 A1 B1 M1 A1	Valid method for finding either 15% of (£)480 OR 24 × (£)22 (implied by sight of (£)72 or (£) 528 respectively) A complete correct method CAO Attempt to find difference in price. FT 'their (a)' A complete correct method *OR 600/480 × 100(%) (= 125%) B1* *600/480 × 100(%) – 100(%) M1* *25(%) A1*

42.

2015 November UNIT 3 (calculator allowed) Foundation Tier	**Mark**	**FINAL MARK SCHEME Comments**
9. (Cost of four 'Top Class Tyres') (before discount) (4×£95=£)380 (after discount) (£)380 − 0.1 × (£)380 or 0.9 × (£)380 (after discount) (£)342 (cost of five 'Economy Tyres' with fitting) 5×(£)64 + (£)20 (£) 340 and a conclusion e.g. Arwyn has enough money to buy, and have fitted, four 'Economy Tyres'.	B1 M1 A1 M1 A1	FT 'their' (£)380 FT cost of top class tyres. FT cost of economy tyres if M1 awarded. FT conclusion consistent with cost calculations.
Look for • Spelling • Clarity of text explanations, • Consistent and correct use of £ or p signs. QWC2: Candidates will be expected to • Present work clearly, with words explaining process and steps AND • Make few, if any, mistakes in mathematical form, spelling, punctuation and grammar in their final answer.	QWC 2	QWC2 Presents relevant material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar.
QWC1 : Candidates will be expected to • Present work clearly, with words explaining process or steps OR • Make few, if any, mistakes in mathematical form, spelling, punctuation and grammar in their final answer.		QWC1 Presents relevant material in a coherent and logical manner but with some errors in use of mathematical form, spelling, punctuation or grammar. OR Evident weakness in organisation of material but using acceptable mathematical form, with few, if any, errors in spelling, punctuation and grammar. QWC0 Evident weakness in organisation of material, and errors in use of mathematical form, spelling, punctuation and grammar.
	7	

43. There is no marking scheme available for this question