Q1. Mrs Moger took a group of children to the theatre.

Adult Ticket £13.20

Child Ticket £8.30

The total cost of **one** adult ticket and **all** the child tickets was £146.

Work out the number of children Mrs Moger took to the theatre.

..... children

(Total 3 marks)

Q2. Here is a list of ingredients for making **8** cheese scones.

Ingredients for 8 cheese scones
200 g self-raising flour
60 g butter
30 g cheese
150 m/ milk

Work out the amount of each ingredient needed to make **12** cheese scones.

..... g self-raising flour

..... g butter

..... g cheese

..... m/ milk

(Total 3 marks)

Q3. Veena bought some food for a barbecue.
She is going to make some hot dogs.
She needs a bread roll and a sausage for each hot dog.

There are 40 bread rolls in a pack.
There are 24 sausages in a pack.

Veena bought exactly the same number of bread rolls and sausages.

(i) How many packs of bread rolls and packs of sausages did she buy?

..... packs of bread rolls

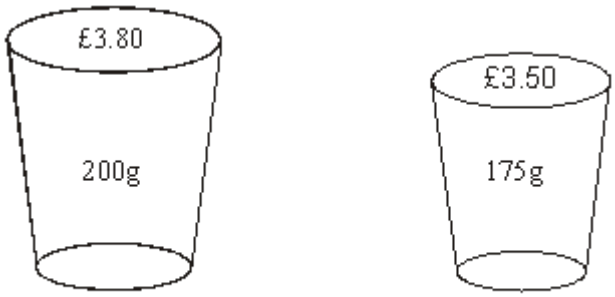
..... packs of sausages

(ii) How many hot dogs can she make?

..... hot dogs

(Total 5 marks)

Q4.



A Large tub of popcorn costs £3.80 and holds 200g.
A Regular tub of popcorn costs £3.50 and holds 175g.

Which is the better value for money?

.....

(Total 3 marks)

Q5. Jenny uses her mother's recipe to make cheese scones.
Her recipe uses a mixture of self-raising flour, butter and cheese in the ratio 6 : 2 : 1 by weight.

In her kitchen, Jenny has:
2 kg of self-raising flour,
500 grams of butter,
200 grams of cheese.

When Jenny makes cheese scones each scone needs about 45 grams of mixture.

Work out the largest number of cheese scones that Jenny can make.

(Total 4 marks)

Q6. Here are the ingredients needed to make 8 pancakes.

Pancakes

Ingredients to make **8** pancakes

300 m*l* milk
1 egg
120 g flour
5 g butter

Jacob makes 24 pancakes.

(a) Work out how much milk he needs.

..... ml

(2)

Cathie makes 12 pancakes.

(b) Work out how much flour she needs.

..... g

(2)
(Total 4 marks)

Q7. A tin of cat food costs 40p.
A shop has a special offer on the cat food.

Special offer

Pay for 2 tins and get 1 tin free

Julie wants 12 tins of cat food.

(a) Work out how much she pays.

£ .....

(3)

The normal price of a cat basket is £20
In a sale, the price of the cat basket is reduced by 15%.

(b) Work out the sale price of the cat basket.

£ .....

(3)
(Total 6 marks)

Q8. Here are the ingredients for making cheese pie for 6 people.

Cheese pie for 6 people

180 g flour

240 g cheese

80 g butter

4 eggs

160 ml milk

Bill makes a cheese pie for 3 people.

(a) Work out how much flour he needs.

..... g

(2)

Jenny makes a cheese pie for 15 people.

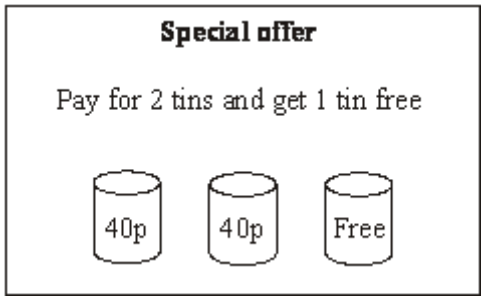
(b) Work out how much milk she needs.

..... m*l*

(2)

(Total 4 marks)

Q9. A tin of cat food costs 40p.
A shop has a special offer on the cat food.



Julie wants 12 tins of cat food.

(a) Work out how much she pays.

£ .....

(3)

9 of the 12 tins are tuna.

(b) Write 9 out of 12 as a percentage.

..... %

(2)

The normal price of a cat basket is £20
In a sale, the price of the cat basket is reduced by 15%.

(c) Work out the sale price of the cat basket.

£ .....

(3)
(Total 8 marks)

Q10. 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)

M1.

Working	Answer	Mark	Additional Guidance
146 – 13.20 = 132.80 132.80 ÷ 8.30	16	3	**M1** for first step in a valid method eg 146 – 13.20 or sight of 132.8(0) **M1** for "132.80" ÷ 8.3 **A1** cao **Alternative 1 (repeated addition)** **M1** for repeated addition of 8.30 (at least twice) **M1** for 13.20 + repeated addition of 8.30 (at least 15 times) **A1** cao **Alternative 2 (repeated subtraction)** **M1** for repeated subtraction of 8.30 (at least twice) **M1** for repeated subtraction of 8.30 (at least 15 times with answers shown)
			Total for Question: 3 marks

M2.

Answer	Mark	Additional Guidance
300, 90, 45, 225	3	**M2** for any one of 200 + 100 or 60 + 30 or 30 + 15 or 150 + 75 or 300 or 90 or 45 or 225 seen. **A1** cao or **M1** for 12 ÷ 8 or 6 ÷ 4 or 3 ÷ 2 or sight of 1.5 **M1** for 200 × "1.5" or 60 × "1.5" or 30 × "1.5" or 150 × "1.5" **A1** cao or **M1** 200 ÷ 8 or 25 **M1** 25 × 12 or 300 **A1** cao or **M1** 200 ÷ 4 or 50 **M1** 50 × 6 or 300

		A1 cao or **M1** 200 ÷ 2 or 100 **M1** 100 × 3 or 300 **A1** cao (In any of the above methods the M marks can be awarded for equivalent calculations with 60, 30 or 150)
		Total for Question: 3 marks

M3.

Working	Answer	Mark	Additional Guidance
LCM (40, 24) = 120 Rolls 120 ÷ 40 = Sausages 120 ÷ 24 = OR Rolls 40 is 2 × 2 × 2 (× 5) Sausages 24 is 2 × 2 × 2 (× 3) 40, 80, **120**, 160, 200, 240, 280 24, 48, 72, 96, **120**, 144, 168	Rolls (packs) 3 Sausages (trays) 5 Hot dogs 120	5	**M1** attempts multiples of either 40 or 24 (at least 3 but condone errors if intention is clear) **M1** attempts multiples of both 40 and 24 (at least 3 of each but condone errors if intention is clear) **M1** (dep on **M1**) division by 40 or 24 or counts up multiples. (implied if one answer correct or answers reversed) **A1** rolls (packs) 3, sausages (trays) 5 OR any multiple of 3,5 **A1** hot dogs 120 or ft on both of their packs or ft 'common multiple' OR **M1** expansion of either number into factors **M1** demonstrates one of the expansions that includes 8 oe **M1** demonstrates a 2nd expansion that includes 8 oe **A1** cao for rolls (packs) 3, sausages (trays) 5 **A1** hot dogs 120
			Total for Question: 5 marks

M4.

	Working	Answer	Mark	Additional Guidance
FE	380 ÷ 200 = 1.9 350 ÷ 175 = 2	Regular by 0.1p per gram	3	**M1** for 380 ÷ 200 (= 1.9) or 200 ÷ 380 (= 0.526) **M1** for 350 ÷ 175 (= 2) oe or 175 ÷ 350 (= 0.5) oe **C1** for Regular with correct calculations
				Total for Question: 3 marks

M5.

	Working	Answer	Mark	Additional Guidance
FE	Scone 30g:10g:5g 200 ÷ 5 = 40 500 ÷ 10 = 50 2000 ÷ 30 = 66.7	40	4	**M1** for 45÷(6+2+1) **A1** for SRF = 30, B = 10, C = 5 **M1** for 200÷5 or 500÷10 or 2000÷30 **A1** cao **OR** **M1** for 6×200 or 2×200 or 1×200 or 6×500 or 2×500 or 1×500 or 6×2000 or 2×2000 or 1×2000 **A1** for SRF, B, C = 1200, 400, 200 or 1500, 500, 250 or 2000, 666.7, 33.3 **M1** for (1200 + 400 + 200)/45 **A1** cao.
				Total for Question: 4 marks

M6.

	Working	Answer	Mark	Additional Guidance
(a)	$\frac{24}{8}$ × 300	900	2	**M1** for $\frac{24}{8}$ oe or $\frac{300}{8}$ oe or 300 + 300 + 300 or 37.5 seen **A1** for 900 (SC: **B1** for sight of two of 3, 360 or 15)
(b)	$\frac{12}{8}$ × 120	180	2	**M1** for use of $\frac{12}{8}$ or 1.5 oe, eg 120 + '$\frac{120}{2}$', or '120 ÷ 8' × 12 **A1** for 180 (SC: **B1** for sight of two of 450, 1.5 or 7.5)
				Total for Question: 4 marks

M7.

	Working	Answer	Mark	Additional Guidance
(a)	12 ÷ 3 × 2 (= 8) 8 × 40 <u>Alternative</u> 3 tins = 40 × 2 = 80 12 tins = 80 × 4	3.20	3	**M2** for 40 × 12 ÷ 3 × 2 or better (inc. adding 8 lots of 40p) (**M1** for using 2 of the 3 operations or 8 seen) **A1** cao **OR** **M1** for 3 tins = 40 × 2 **M1** (dep) for "80" × 4 **A1** cao [SC: **B2** for sight of digits 320 if M0 scored] [SC: **B1** for 480 or 4.80 if M0 scored]

(b)	$\frac{15}{100} \times 20 = 3$ **OR** 10% = 20 ÷10 = 2 5% = 2 ÷2 = 1 15% = 2 + 1 = 3 20 – 3 Alternative 20 × 0.85	17	3	$\frac{15}{100}$ **M1** for $\frac{15}{100}$ × 20 oe or a correct method to work out 10% and 5% of 20 or 2 and 1 seen **A1** for 3 cao **A1** ft for 20 − "3" dependant upon **M1** scored [SC: **B2** for 3 on answer line with no working] **Alternative** **B1** cao for 85 or 0.85 seen **M1** for $\frac{"100-15"}{100}$ or "1 – 0.15" × 20 **A1** ft for a correct solution of $\frac{"100-15"}{100}$ or "1 – 0.15" × 20 **OR** 17 (dep on **M1** scored)
				Total for Question: 6 marks

M8.

	Working	Answer	Mark	Additional Guidance
(a)	180 ÷ 2	90	2	**M1** for 180 ÷ 2 **OR** 180 ÷ 6 × 3 **A1** cao
(b)	160 × 2.5	400	2	**M1** for 160 × 2.5 **OR** 160 ÷ 6 × 15 **OR** 160 ÷ 2 × 5 oe **A1** cao SC: **B1** for an answer of 399 to 405
				Total for Question: 4 marks

M9.

	Working	Answer	Mark	Additional Guidance
(a)	12 ÷ 3 × 2 (= 8) 8 × 40 Alternative: 3 tins = 40 × 2 = 80 12 tins = 80 × 4	3.20	3	**M2** for 40 × 12 ÷ 3 × 2 or better (inc. adding 8 lots of 40p) (**M1** for using 2 of the 3 operations or 8 seen) **A1** cao **OR** **M1** for 3 tins = 40 × 2 (=80) **M1** for "80" × 4 **A1** cao [SC: if M0 scored: **B2** for digits 32, or **B1** for 480 or 4.80]
(b)	$\frac{9}{12}$ × 100	75	2	**M1** for $\frac{9}{12}$ oe **A1** cao
(c)	$\frac{15}{100}$ × 20 = 3 **OR** 10% = 20 ÷ 10 = 2 5% = 2 ÷ 2 = 1 15% = 2 + 1 = 3 20 – 3 Alternative: 20 × 0.85	17	3	**M1** for $\frac{15}{100}$ × 20 oe or a correct method to work out 10% and 5% of 20, or 2 and 1 seen **A1** for 3 cao **A1** ft for 20 – "3" dependent on **M1** scored **Alternative:** **B1** cao for 85 or 0.85 seen **M1** for $\frac{"100-15"}{100}$ × 20 or "1 – 0.15" × 20 **A1 ft** for a correct solution of $\frac{"100-15"}{100}$ × 20 or "1 – 0.15" × 20 or 17 dependent on **M1** scored SC (for both alternatives) **B2** for £3
				Total for Question: 8 marks

M10.

	Working	Answer	Mark	Additional Guidance
(a)	$\frac{9}{600}$	$\frac{3}{20}$	2	**M1** $\frac{90}{600}$ **A1** $\frac{3}{20}$ cao

				[SC: **B1** for 0.15 or 15% if **M0** scored]
(b)	$\frac{180}{600} \times 100$ **OR** $\frac{180}{600} = \frac{30}{100}$	30	*2*	$\frac{180}{600} \times 100$ **M1** **A1** cao **OR** $\frac{180}{600} = \frac{30}{100}$ or attempt to cancel to 100 **M1** **A1** cao
(c)	600 – (90 +180) = 330 blue or green 330 ÷ 3	110	*2*	**M1** ["600 – (90 + 180)"] ÷ 3 **A1** cao [SC: **B1** for an answer of 140 or 170 if **M0** scored]
				Total for Question: 6 marks

E1. This question was well understood and a surprising 65% of candidates obtained the fully correct answer of 16. Many candidates tried unsuccessfully with repeated addition or subtraction methods and did gain some marks for incorrect answers. The least successful solutions were for those candidates who tried trial and improvement solutions as they usually forgot the adult ticket price was different to the child ticket price. 26% of candidates scored no marks.

E2. **Foundation**

About two thirds of the candidates were able to score at least 1 mark for this question. Many candidates realised that they needed to increase the ingredients by half. Many scored 2 marks for getting only one of the ingredients correct (usually 300), but then accompanied this with often wild values for the other ingredients.

Higher

There were many good answers to this question. Most candidates managed to get the 300g for the self-raising flour, but then there was a noticeable tailing off in success. Those candidates who added half as much again onto the weights given generally seemed to be the most successful. Many candidates tried to use the unitary method, but then came unstuck when dividing by 8. This was particularly true when the division would have led to a decimal answer, for example, the 60g of butter. It was also disturbing to see the number of candidates who could not successfully multiply 25 by 12.

##

Foundation

There were many good attempts at this question, with a significant number of correct solutions. Most candidates attempted to list the multiples, but were often handicapped by poor arithmetic, resulting in very long lists without a common multiple being found. Some who achieved 120 in both lists then miscounted the number of 24s or 40s they had in their list. The final mark was quite frequently lost because they thought they needed to add the number of sausages and rolls, arriving at 240 instead of 120.

Higher

It was pleasing to see how well candidates coped with this question. Nearly ¾ of the candidates scored all 5 marks with a further 11% scoring 4 marks. Most candidates were clearly aware of the need to find a common multiple of 24 and 40 but many had difficulty adding 24 successively to produce a list of multiples. This led to some very extensive searches as 120 was missed. The few who used factorisation or factor trees usually completed the question well showing their understanding of LCM and HCF. Once 3 packs of rolls and 5 packs of sausages (or multiples of these) were found, most could then go on to find the correct number of hot dogs. However a substantial number of candidates then either doubled their 120 or halved their 120 losing the final accuracy mark.

E6. This question was done well by the vast majority of the candidates. In part (a), most candidates were able to find the amount of milk required to make 24 pancakes, but a few thought that the recipe was used to make only one pancake and consequently worked out 24 × 300. In part (b), most candidates realised that they needed to find the amount of flour to make 4 pancakes and then add this to 120 for a total of 12 pancakes. A popular alternative approach was to find the amount of flour needed to make 1 pancake, 120 ÷ 8, and then multiply this by 12 for the total amount. As with part (a) a common incorrect method was to work out 12 × 120

E7. In part (a), most candidates realised the need to pay for 8 tins of cat food in order to get 12; however a significant number of candidates made arithmetic errors in their calculation of 40 × 8 Some candidates just worked out the cost of 12 tins, while many assumed the offer was “buy one get one free” and just calculated the cost of 6 tins.

Part (b) was generally answered well with most candidates able, with whatever method, to correctly work out 15% of £20. However a common error was to say 10% = £2, then 5% = £4 rather than £1. A significant number of candidates did not then subtract the reduction from £20 and thus failed to score the final mark.

E8. Foundation

Most candidates were able to halve 180 correctly without any working, scoring both available marks in part (a). However, some candidates failed to read the question carefully and thought that you just divided 180 by 3 reaching an answer of 60. A few multiplied 180 by 3 thinking the initial ingredients were sufficient for one person.

Around 60% of the candidates managed to find that 400 ml of milk was needed in (b). Many clearly understood what to do but lost an accuracy mark when they prematurely rounded their answer to 160 ÷ 6, reaching a final answer somewhere between 399 and 405. A surprising number of candidates recognised the need to find the amount of milk needed for 3 people but then proceeded to divided 160 by 3.

Higher

The correct answer to part (a) was obtained by the vast majority of candidates. Those few candidates that did not obtain the correct answer generally divided by 3 rather than 2. Part (b) was less well done. Approximately 5% of candidates gained only 1 out of 2 marks; this was generally due to a loss of accuracy due to premature rounding although the incorrect answers to 160 ÷ 2 or 160 × 2 were also frequently seen.

E9. This question differentiated well between candidates. Part (a) was quite well done, many candidates using a diagrammatic representation or writing down lists to help them understand the situation. These methods commonly lead to the award of at least 2 of the 3 marks available. Poor arithmetic affected some candidate's responses whilst others just worked out the cost of 12 tins (£4.80) or of 6 tins. This latter group seemed to be under the illusion that the offer was equivalent to "buy one, get one free". Many attempts to part (b) of the question gave 9/12 as the relevant fraction, but commonly candidates were unable to convert this to a percentage. 44% of candidates scored full marks in part (b). Part (c) was quite well done. Some candidates worked out the price reduction but did not subtract it from the normal price to find the sale price. Weaker candidates merely subtracted 15(%) from (£)20 and gave the answer £5.

E10. In many cases in part (a), candidates gave a fraction of $\frac{90}{600}$ and then either failed to simplify it correctly or failed to complete the simplifying process.

Part (b) was quite poorly answered, many candidates misunderstanding the demand of the question and trying to find 180% of 600. Many tried partitioning methods and often statements like “10% = 60” were seen but solutions were unable to progress and no marks could be awarded.

In part (c), the most popular misconception was to divide 330 by 2 (instead of 3) and then to divide their answer by 2 again; 82.5 or similar being a common incorrect answer seen. Some candidates failed to take account of both the yellow and red counters already having been used, omitting usually just one of them, leading to an answer of 140 or 170. One mark was awarded in these cases.