Q1. Find 15% of £200.

£ .....

(Total 1 mark)

Q2. Mary scored 14 out of 20 in a test.

Find 14 out of 20 as a percentage.

..... %

(Total 2 marks)

Q3. Work out 35% of 240.

.....

(Total 2 marks)

Q4. Work out 15% of £80

£ .....

(Total 2 marks)

Q5. Last year, Jora spent

30% of his salary on rent

$\frac{2}{5}$ of his salary on entertainment

$\frac{1}{4}$ of his salary on living expenses.

He saved the rest of his salary.

Jora spent £3600 on living expenses.

Work out how much money he saved.

£ .....

(Total 5 marks)

Q6. Jason earns £50 000 a year.

He has to pay income tax.

He is allowed to earn £6500 before paying tax.
He pays 20% tax on the next £37 400.
He then pays 40% tax on the rest.

His employer deducts the income tax each month.

How much income tax does Jason get deducted each month?

£.....

(Total 5 marks)

Q7. Mrs White wants to buy a new washing machine.

Three shops sell the washing machine she wants.

Clean Machines	**Electrics**	**Wash 'n' Go**
		
Washing machine	**Washing machine**	**Washing machine**
Buy now pay later! £50 deposit plus	$\frac{1}{4}$ off the usual price of	£280 plus

10 equal payments of £27	£420	VAT at $17\frac{1}{2}\%$

Mrs White wants to buy the cheapest one.
She decides to buy her washing machine from one of these 3 shops.

From which of these shops should she buy her washing machine?
You must show how you decided on your answer.

.....

(Total 6 marks)

Q8. Anwar, Bethany and Colin each earn the same weekly wage.

Each week, Anwar saves 12% of his wage and spends the rest.

Each week, Bethany spends $\frac{7}{8}$ of her wage and saves the rest.

The ratio of the money Colin saves each week to what he spends is 1 : 9

Which of Anwar, Bethany and Colin, saves the most money each week?
You must show each stage of your working.

.....

(Total 4 marks)

Q9. The table shows the membership and annual fees of a local golf club.

	Full members	**Weekday members**	**Lady members**	**Junior members**
Number of members	**243**	**64**	**77**	**36**
Annual Fee	**£600**	**£300**	**£250**	**£120**

The club needs to raise £7200 to refurbish the clubhouse next year.

In the committee meeting, the club Captain suggests that the fee for each full member next year should be increased by 5%.
The club President says that next year each member should pay an extra £18

Which is the better suggestion?
You must show all your working.

(Total 5 marks)

Q10. Kylie wants to invest £1000 for one year.

She considers two investments, Investment A and Investment B.

Investment A	**Investment B**
£1000	£1000
Earns £2.39 per month	Earns 3.29% interest per annum
plus	Interest paid yearly by cheque.
£4.50 bonus for each complete year	
Interest paid monthly by cheque.	

Kylie wants to get the greatest return on her investment.

Which of these investments should she choose?

(Total 5 marks)

Q11. A shop sells mobile phones.
The table shows the number of mobile phones sold each month from January to May.

Jan	Feb	Mar	Apr	May
70	64	73	85	91

(a) Work out the percentage increase in the number of mobile phones sold from April to May.
Give your answer correct to 3 significant figures.

..... %

(3)

(b) Work out the 3-month moving averages for the information in the table.
The first one has been worked out for you.

.....69..... ....

(2)
(Total 5 marks)

Q12. A garage sells British cars and foreign cars.
The ratio of the number of British cars sold to the number of foreign cars sold is 2 : 7

The garage sells 45 cars in one week.

(a) Work out the number of British cars the garage sold that week.

.....

(2)

A car tyre costs £80 plus VAT at $17\frac{1}{2}$ %.

(b) Work out the total cost of the tyre.

£ .....

(3)

The value of a new car is £12 000
The value of the car depreciates by 20% per year.

(c) Work out the value of the car after 2 years.

£ .....

(3)
(Total 8 marks)

Q13. A garage sells British cars and foreign cars.
The ratio of the number of British cars sold to the number of foreign cars sold is 2 : 7

The garage sells 45 cars in one week.

(a) Work out the number of British cars the garage sold that week.

.....

(2)

A car tyre costs £80 plus VAT at $17\frac{1}{2}$ %.

(b) Work out the total cost of the tyre.

£ .....

(3)
(Total 5 marks)

Q14. A coin is made from copper and nickel.
84% of its weight is copper.
16% of its weight is nickel.

Find the ratio of the weight of copper to the weight of nickel.
Give your ratio in its simplest form.

.....

(Total 2 marks)

Q15. Jack invests £3000 for 2 years at 4% per annum compound interest.

Work out the value of the investment at the end of 2 years.

£ .....

(Total 3 marks)

Q16. The cost of a radio is the list price plus VAT at $17\frac{1}{2}\%$.

The list price of a radio is £240

Work out the cost of the radio.

£ .....

(Total 3 marks)

Q17. 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)

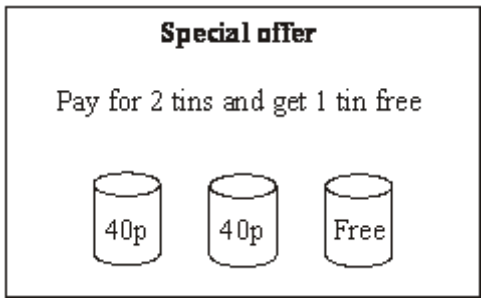
The normal price of a cat basket is £20
In a sale, the price of the cat basket is reduced by 15%.

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

£ .....

(3)
(Total 6 marks)

Q18. 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)

Q19. 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)

Q20. Imran wants to work out how much tax he needs to pay.

Last year he earned £18 000

He does not pay Income tax on the first £6475 he earned.
He pays tax of 20 pence for each pound he earned above £6475

He pays the tax in two equal half-yearly instalments.

(a) How much Income tax does Imran have to pay in his first half-yearly instalment?

.....

(4)

Imran wants to know what percentage of his earnings he pays in tax.

(b) Calculate the Income tax Imran has to pay as a percentage of his earnings last year.

..... %

(2)
(Total 6 marks)

Q21. Last year Sasha was paid £15400 after deductions from her gross salary.
She was paid 70% of her gross salary.
This year Sasha's gross salary increased by 2%.

Work out the increase in Sasha's gross salary. Give your answer in pounds.

£ .....

(Total 4 marks)

Q22. Jennie's council has a target of $\frac{1}{5}$ for households to recycle their waste.

In January, Jennie recycled $\frac{1}{10}$ of her household waste.

In February, she recycled 15 kg of her 120 kg of household waste.

Her result for March was 13% recycled out of 112 kg of household waste.

Has Jennie met the council's target?
Which was her best month for recycling?
Show clearly how you got your answers.

(Total 4 marks)

M1.

Working	Answer	Mark	Additional Guidance
$\frac{15}{100} \times 200$ or 20 + 10	30	1	**B1** cao
			Total for Question: 1 mark

M2.

Working	Answer	Mark	Additional Guidance
$\frac{14}{20} \times 100$	70	2	**M1** for $\frac{14}{20} \times 100$ or $\frac{1400}{20}$ or 14×5 seen or $\frac{70}{100}$ or $\frac{7}{10}$ **OR** for a correct method to turn fraction into percentage **OR** for a correct decomposition, e.g. 10 + 2 + 2 = 50% + 10% + 10% (condone one error) **A1** cao
			Total for Question: 2 marks

M3.

Working	Answer	Mark	Additional Guidance
$\frac{35}{100}$ × 240 =	84	2	**M1** for $\frac{35}{100}$ × 240 or 0.35 × 240 or 35 × 2.4 or 24 + 24 + 24 + 12 or for any complete method. **A1** for 84 cao
			Total for Question: 2 marks

M4.

Working	Answer	Mark	Additional Guidance
80 ÷ 100 × 15	12	2	**M1** for 80 ÷ 100 × 15 **or** 8 and 4 seen **or** correct method to find 10% and 5% of 80 eg 80 ÷ 100 × 10 and 80 ÷ 100 × 5 oe **A1** cao
			Total for Question: 2 marks

M5.

Working	Answer	Mark	Additional Guidance
3600 × 4 = 14400 $\frac{2}{5}$ = 40% $\frac{1}{4}$ = 25%	£720	5	**M1** 3600 × 4 (= 14400) **B1 for** $\frac{2}{5}$ = 40% **or** $\frac{1}{4}$ = 25% **M1 for 30% + 40% + 50% (= 95%)** **M1 for complete method to find 5% of 14400** **A1 cao** **OR**

30 + 40 + 25 = 95% Saved 5% 10% of 14400 = 1440 5% of 1440 = 1440 ÷ 2			**M1 for 3600 × 4 (= 14400)** **B1 for 30% = $^{3}/_{10}$** **M1 for** $\frac{3}{10}+\frac{2}{5}+\frac{1}{4}\ \left(=\frac{19}{10}\right)$ **oe** **M1 for complete method to find** $\frac{1}{20}$ **of 14400** **A1 cao** **OR** **M1 3600 × 4 (= 14400)** **M1 for 0.3 × 14400 oe (= 4320)** **M1 for** $\frac{2}{5}\times 14400$ **oe (= 5760)** **M1 14400 – 3600 – 4320 – 5760** **A1 cao** **SC if no other marks award** **M1 for 0.3 x 3600 (= 1080)** **M1 for** $\frac{2}{5}$ **× 3600 (= 1440)**
			Total for Question: 5 marks

M6.

Working	Answer	Mark	Additional Guidance
20% of £37 400 = £7480 50 000 – 37 400 – 6500 = £6100 40% of 6100 = £2440 (“7480” + “2440”) ÷ 12	£826.67	5	**M1** for attempt to find 20% of £37 400 **M1** for attempt to find how much is taxed at 40% 50 000 – 37 400 – 6500 **M1** for attempt to find 40% of “6100” **M1** for monthly tax bill is (“7480” + “2440”) ÷ 12 **A1** for £826.67 cao
			Total for Question: 5 marks

M7.

	Working	Answer	Mark	Additional Guidance
QWC (ii, iii) **FE**	280 × 0.175 + 280 (= 329) 420 ÷ 4 (= 315) 50 + 10 × 27 (= 320)	£315, Electrics	6	**M1** for 50 + 10 × 27

	Total for Question: 6 marks

M8.

Working	Answer	Mark	Additional Guidance

		Bethany	4	

Total for Question: 4 marks

M9.

	Working	Answer	Mark	Additional Guidance

QWC (ii, iii)

FE

5% of £600 = 6 × 5 = 30

243 × 30 = 7290

(243 + 64 + 77 + 36) × 18
= 420 × 18

Method 1: 420 × 10 = 4200 +
420 × 8 =
3360
7560

Method 2:

×	400	20
10	4000	200
8	3200	160

4000 + 200 + 3200 + 160 = 7560

Method 3:

4	2	0	
0 4	0 2	0 0	1
3 2	1 6	0 0	8

£18 per member

5

	Total for Question: 5 marks

M10.

	Working	Answer	Mark	Additional Guidance
QWC	2.39 × 12 + 4.5	33.18	5	**M1** for '2.39 × 12' + 4.5 or diagram showing 2.39, 4.78, 7.17, …, 28.68 oe (condone one error)
FE	3.29/100 × 1000	32.90		**A1** cao **M1** for 3.29/100 × 1000 oe **A1** cao **C1** for Investment A identified **QWC: Decision must be stated, with calculations clearly attributable**
				Total for Question: 5 marks

M11.

	Working	Answer	Mark	Additional Guidance
(a)	$\frac{91-85}{85} \times 100 = \frac{6}{85} \times 100 =$ 7.05882..	7.06%	3	**M2** $\frac{91-85}{85}$ × 100 (**M1** $\frac{91-85}{85}$ or sight of $\frac{6}{85}$ or 0.0705 – 0.071 or or 1.0705 – 1.071) **A1** 7.05 – 7.06

				Or $\frac{91}{85}$ **M1** × 100 (= 107.05) **M1** (dep) "107.05" – 100 **A1** 7.05-7.06 T&I methods must lead to an answer 7.05 – 7.06 for full marks, otherwise 0 marks
(b)	(64 + 73 + 85)/3 = 222/3 = 74 (73 + 85 + 91)/3 = 249/3 = 83	74, 83	2	**M1** for (64 + 73 + 85)/3 or (73 + 85 + 91)/3 or 222/3 or 249/3 or 74 or 83 (condone missing brackets) **A1** both answers in the correct order cao
				Total for Question: 5 marks

M12.

	Working	Answer	Mark	Additional Guidance
(a)	45 × 2 ÷ 9	10	2	**M1** for 45 ÷ "2 + 7" or 45 × 2 or 5 seen, or 90 seen or 10 seen as part of a ratio e.g 10:35 **A1** cao
(b)	(80 × 17.5/100) + 80 = 14 + 80 =	£94	3	**M2** for 80 × $\frac{117.5}{100}$ or 80 × 1.175 oe **A1** cao or **M1** for 80 × 0.175 or 80 × $\frac{17.5}{100}$ oe or 14 seen or 8 + 4 + 2 seen **M1**(dep) '14' + 80 or 80 + 80 × $\frac{17.5}{100}$ oe **A1** cao
(c)	12000 × 0.8^2 **OR** 1st yr: 12000 × 0.2 = 2400; 12000 – 2400 = 9600	£7680	3	**M2** for 12000 × 0.8^2 or 12000 × 0.8^3 **A1** cao **OR** **M1** 12000 × 0.8 oe or 9600 or 2400

	2nd yr: 9600 × 0.2 = 1920; 9600 – 1920 = 7680 [3rd year is £6144; 4th yr is £4915.20]			or 4800 or 7200 seen **M1**(dep) '9600' × 0.8 oe **A1** cao (if correct answer seen, ignore extra years)
				Total for Question: 8 marks

M13.

	Working	Answer	Mark	Additional Guidance
(a)	45 × 2 ÷ 9	10	2	**M1** for 45 × 2 or 45 ÷ "2 + 7" or 5 seen, or 90 seen, or 10 seen as part of a ratio (eg 10:35) **A1** cao
(b)	(80 × 17.5/100) + 80 = 14 + 80 =	£94	3	**M2** for $80\times\frac{117.5}{100}$ or 80 × 1.175 oe **A1** cao or **M1** for 80 × 0.175 or $80\times\frac{17.5}{100}$ oe or 14 seen or 8 + 4 + 2 seen **M1**(dep) '14' + 80 or 80 + (80 × 0.175) oe **A1** cao
				Total for Question: 5 marks

M14.

Working	Answer	Mark	Additional Guidance
84:16 or 42:8	21:4	2	**M1** 84:16 or 42:8 or 4:21 or 5.25:1 or 1:0.19…, or any multiple of 84:16 (eg 8.4:1.6, 21:4, 10.5:2),

			or for answers given the wrong way around. For **M1** ignore % signs. **A1** cao
			Total for Question: 2 marks

M15.

Working	Answer	Mark	Additional Guidance
$3000 \times \frac{4}{100} + 3000 = 3120$ $3120 \times \frac{4}{100} + 3120 = 3244.80$ **or** $3000 \times \left(\frac{104}{100}\right)^2$	3244.80	3	**M1** for $3000 \times \frac{4}{100}$ **or** 120 **or** 240 **or** 3240 **or** 3120 **or** 1.04 × 3000 **or** 2880 **or** 2760 **M1**(dep) for (3000+'120') $\times \frac{4}{100}$ **or** 124.8(0) **or** "3120"×1.04 **A1** £3244.8(0) **OR** **M2** $3000 \times \left(\frac{104}{100}\right)^2$ **or** $3000 \times \left(\frac{104}{100}\right)^3$ **A1** £3244.8(0) NB : If correct answer seen then ignore subsequent years
			Total for Question: 3 marks

M16.

Working	Answer	Mark	Additional Guidance

$240 \times \frac{117.5}{100}$ **or** 240 + 24 + 12 + 6	£282	3	**B1** for 117.5 or 1.175 **M1** for $240 \times \frac{117.5}{100}$ oe **A1** cao **OR** **M1** for $240 \times \frac{17.5}{100}$ **OR** 24 + 12 + 6 oe **OR** 42 **M1**(dep) for 240 + "42" **OR** 240 + 24 + 12 + 6 **A1** cao
			Total for Question: 3 marks

M17.

	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 **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)	$\frac{15}{100}$ × 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" 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

M18.

	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

M19.

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

M20.

	Working	Answer	Mark	Additional Guidance
(a)	18000 – 6475 = 11525 $11525 \times \frac{20}{100} = 2305$	£1152.50	4	**M1** 18000 – 6475 **A1** 11525

(b)	$\frac{'2305'}{18000} \times 100$	12.8	2		

	Total for Question: 6 marks

M21.

	Working	Answer	Mark	Additional Guidance
FE	15400 ÷ 70 × 100 = 22000 22000 × 2 ÷ 100	440	4	**M1** 15400 ÷ 70 × 100 oe **A1** 22000 **M1** '22000' × 2 ÷ 100 oe **A1** cao
				Total for Question: 4 marks

M22.

	Working	Answer	Mark	Additional Guidance
QWC iii FE	See table at end	Best month and supporting explanation	4	**M1** Converts for at least 2 months to a common format (fractions, decimals or %age) **A1** all correct **C1** for Council target: No (yes) dep on M1 and consistent with the candidates calculations **QWC: Decisions should be started, following through from working out** **C1** March with all calculations correct for the 3 months **QWC: Decisions should be started, following**

				through from working out
Total for Question: 4 marks				

	Fraction	Decimal	%	kg
Jan	$\frac{1}{10}$	0.1	10%	Not known
Feb	$\frac{1}{8}$	0.125	12.5%	15 kg
Mar	$\frac{13}{100}$	0.13	13%	14.56 kg

E1. This question was also well understood with 84% of candidates scoring the mark for an answer of £30 or £30.00. It was disappointing to see that some candidates either could not find 15% of £200 or wrote down the answer as £230 or £170 and could not be awarded the single mark as they had not understood the question.

E2. Just over a third of the candidates were able to find the given test score as a percentage. Relatively few started their answer by first writing down the calculation $\frac{14}{20} \times 100$. A common incorrect method was to correctly working out 75% of 20 to get 15 and then incorrectly subtracting 1 to get 74%. Another common incorrect method was $\frac{14}{100} \times 20$. Partitioning methods were rarely successful.

E3. Relatively few candidates used their calculator efficiently to complete this question. 39% of candidates gained some credit for their answers, usually 2 marks. Many candidates used the method of working out 10% and 5% of 240 first. Candidates who attempted to use 25% and 10% were less successful, usually because they tried to work out 10% from their 25% rather than dividing 240 by 10. Of the large number of unsuccessful attempts, many candidates simply multiplied 35 by 240 to give 8400 as their answer. A significant minority of candidates decreased 240 by 35%. Where working was shown, credit was given for this answer.

##

The majority of candidates successfully applied non-calculator methods to find 10% then 5%. Where more complicated methods involving fractions were attempted, arithmetic errors often occurred. Weaker candidates either found 50% and then presented 25% as the final answer or 20% rather than 10% first leading to an answer of £24.

##

Foundation

Another question which candidates preferred not to attempt. The significance of the £3600 was missed by nearly all the candidates who used this as figure for his salary, rather than 4 × £3600. Some credit was given for candidates who demonstrated 2/5 and 30% of the £3600, but in too many cases these calculations were done badly. There were several different routes to the solution, including conversion to fractions, to decimals, or to percentages. This was again a question in which candidates had to order their work logically on the page in order for examiners to understand their order of calculations, and the chosen method of solution. Overall few marks were gained on this question. Centres need to emphasise at all opportunities the need for candidates to set out work logically and clearly.

Higher

Candidates need to be encouraged to set their work out in a logical order when tackling a multi-stage problem. Haphazard working led to loss of zeros, incorrect subtraction and candidates seeming to lose track of their method. Often when finding 2/5 of 14400, candidates found 1/5 but then did not carry on to double their answer. Many candidates knew how to find the correct proportions but were let down by poor multiplication skills. A significant number did not appreciate the detail of the question and found proportions of £3600 rather than £14400.

E11. Part (a) was a percentage change question made a little more challenging by the relevant numbers being in a table. It was extremely rare for anything other than the 85 and 91 to be chosen. However, apart from that the remaining working was not good. Many candidates had little idea how to proceed and wrote 6% presumably from 91 -85. Others knew they had to convert a fraction to a percentage, but used a denominator of 91. Another common error was to calculate either 91/85 or 91/85 × 100 and then omit the subtraction of either unity or 100. Some candidates adopted a trial and improvement approach but rarely got to within the demanded level of accuracy.

Part (b) was a standard moving average question. There were many correct answers, but also many candidates did not know where to start and left a blank or worked out the average of all the figures.

E12. Part (a) was very well done. A few candidates wrote down both 10 and 35 without identifying which value answered the question. They got one of the two marks.

Part (b) was also very well done with a majority of answers involving multiplying by 117.5/100 to get the answer directly. Of course, there were a considerable number who worked out 80 × 17.5/100 and added the answer to 80.

A few took the 8 + 4 + 2 route to get to the £94.

The main errors were a failure to add the £14 to £80 and a miscalculation on the £8 + £4 + £2, usually at the $2\frac{1}{2}$% stage.

Part (c) was a standard depreciation question. It was pleasing to see so many students using the efficient 12000×0.8^2 although many who used a careful step by step approach also gained full marks. A common misread was 1200 for 12000, which resulted in the loss of 1 mark. A few candidates added on the 20%.

Of course, there were many candidates who worked out 20% of £12000 and then subtracted 2 × 2400 to get the wrong answer £7200

E13. It was usual to award some method marks in some part of this question, but few answers both parts correctly. Lots of candidates wrote their answer as 10:35, misreading the question. Trial and improvement methods were also seen. It is a real concern that so many candidates had little idea with regard to calculating percentages. Many non-calculator methods were seen, which rarely attracted any marks due to the many numerical errors that accompanied them. Some candidates went as far as calculating the VAT, but then failed to add it on to find the total.

E14. The majority of candidates gave their answer as ratios, but the weaker candidates used fractions. Those candidates who gave their answer as a ratio often left their answer as 84:16 or made errors when cancelling. A significant number of candidates reversed the order of the ratios.

E15. Around 30% of candidates used simple interest only and therefore gained 1 mark out of the 3 available; 3120 and 6240 were common incorrect answers. A significant number of candidates could not work out 4% of 3000, 24% of candidates failed to gain any marks in this question.

E16. Those candidates who multiplied by 0.175 or by 1.175 usually got the correct answer. The addition of 17.5 to 240 was a popular incorrect method. Many candidates still persist in working 17.5% of 240 out in parts using non-calculator methods and making errors; there were many who attempted to fins 10%, 5%, 2.5% or 10%, 5%, 1%, 0.5%. A significant number of candidates successfully worked out the amount of VAT but then subtracted rather than added this to the list price. Very few showed 4/100 × 3000 as working. Significantly, nearly 20% of candidates failed to score any marks on this question.

E17. 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.

E18. 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.

E19. 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.