FSMQ
MATHEMATICS

4984 – Financial Calculations
Mark scheme

4984

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Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from aqa.org.uk

Key to mark scheme abbreviations

M	mark is for method
m or dM	mark is dependent on one or more M marks and is for method
A	mark is dependent on M or m marks and is for accuracy
B	mark is independent of M or m marks and is for method and accuracy
E	mark is for explanation
√or ft or F	follow through from previous incorrect result
CAO	correct answer only
CSO	correct solution only
AWFW	anything which falls within
AWRT	anything which rounds to
ACF	any correct form
AG	answer given
SC	special case
OE	or equivalent
A2,1	2 or 1 (or 0) accuracy marks
–*x* EE	deduct *x* marks for each error
NMS	no method shown
PI	possibly implied
SCA	substantially correct approach
c	candidate
sf	significant figure(s)
dp	decimal place(s)

No Method Shown

Where the question specifically requires a particular method to be used, we must usually see evidence of use of this method for any marks to be awarded.

Where the answer can be reasonably obtained without showing working and it is very unlikely that the correct answer can be obtained by using an incorrect method, we must award **full marks**. However, the obvious penalty to candidates showing no working is that incorrect answers, however close, earn **no marks**.

Where a question asks the candidate to state or write down a result, no method need be shown for full marks.

Where the permitted calculator has functions which reasonably allow the solution of the question directly, the correct answer without working earns **full marks**, unless it is given to less than the degree of accuracy accepted in the mark scheme, when it gains **no marks**.

Otherwise we require evidence of a correct method for any marks to be awarded.

Question	Solution	Marks	Total	Comments
	BUILD UP METHOD NO MARKS UNLESS REQUIRED ANSWER OBTAINED **UNITS ARE NOT REQUIRED UNLESS ANSWER OF [EG] 4368 IN Q1A NEEDS P OR PENCE**			ANSWERS MUST BE TO 3SF OR ANSWER COULD BE SEEN TO 3 OR MORE SF AND THEN ROUNDED OR TRUNCATED FOR FULL MARKS
1(a)	discount = $\frac{16}{100}\times £52$	M1		
	$= £8.32$	A1		or
	Olivia pays £43.68	A1	3	price is $\frac{84}{100}\times 52$ M1A1
(b)	fraction is $\frac{40}{180}$	B1		oe
	$= \frac{2}{9}$	B1	2	percentages or decimal fraction not accepted
(c)	price for each bag is £9.49	B1		
	total price is £18.98	B1	2	SC1 £19

(d)	final price = 1.25% of sale price $= 1.25 \times \frac{2}{3}$ of original price $= 0.833$ of original price [accept $\frac{5}{6}$ or 0.83] reduction is 0.167 of original price accept $\frac{1}{6}$, 16.6%, 17% ie 16.7% reduction [accept 16.67 or 16.66]	M1 A1 M1 A1	4	if initial price is eg £90 reduction in price in sale is £30 price in sale is £60 M1 surcharge for size is $0.25 \times$£60 M1 price in sale is £75 A1 percentage reduction is 16.7% A1 if initial price is eg £100 reduction in price in sale is £33.33 price in sale is £66.67 M1 surcharge for size is $0.25 \times$£66.67 M1 price in sale is £83.33 [or 83.34] A1 percentage reduction is 16.67 or 16.66% A1 or sale price is $\frac{2}{3}\times$ original price surcharge is $0.25 \times \frac{2}{3} \times$ original sale price M1 $= \frac{1}{6}$ of original price A1 price in the final sale is $\frac{2}{3} + \frac{1}{6}$ of original price $= \frac{5}{6}$ of original price M1 $\therefore$ percentage reduction is 16.7% of original A1
	Total		**11**	

Question	Solution	Marks	Total	Comments

2

	Starting value (£)	Interest (£)	Final value (£)
First 6 months	4260.00	67.73	4327.73
Second 6 months	4327.73	68.81	4396.54
Third 6 months	4396.54	69.90	4466.44
Fourth 6 months	4466.44	71.02	4537.46

(a)	third 6 months £4396.54 $\times\frac{1.59}{100}$	M1		accept 69.90
	final value is £4466.44	A1		
	fourth 6 months £4466.44 $\times\frac{1.59}{100}$	M1		accept 71.02
	final value is £4537.46	A1		SC3 for £4537.45 or .47 [ie 1p out] SC2 for 2 p out or 1p out twice
			4	
				If more than 2dp given, delete 1 mark in working + final answer mark
				If the table is not filled in just final answer M1 A1 [if correct otherwise zero]
				If add 1.08 to interest every time, SC1 for 69.89, 4466.43 etc
(b)	total interest is £277.46	B1 ft		dependent on M mark above
			5	

3

	A	B	C	D
1	**Item**	**Price in London**	**Price in Boston**	**Price in Boston as a percentage of price in London**
2	Apple iPod Nano	£115.00	£87.74	76.3
3	Elizabeth Arden '8 hour cream'	£25.00	£11.56	46.2
4	Women's Roxanne skinny jeans	£160.00	£101.79	63.6
5	Sesame Street Let's Rock Elmo	£85.00	£40.13	47.2

(a)	any in column D	M1 A1		eg; for 76.3 accept 76, 76.2956, 76.295, 76.296, 76.29 or 76.2
	all column D correct	A1		accept as above
	all to one decimal place	B1	4	CAO
(b)	$\frac{C3}{B3}\times 100$	B1	1	
	Total		**5**	

Question	Solution	Marks	Total	Comments
4(a)	£65 = 13.4% of ticket	B1	1	if used correctly
	ticket cost $= £65 \times \frac{100}{13.4}$	M1	1	do NOT accept 100/13.4 and then multiplied by 65 unless obtaining one of below answers accept £485.08, £485
	= £485.07	A1	1	SC2 for others in range £485.04 - £485.11
(b)	cost is $£\frac{192}{1.61}$	M1	1	
	= £119.2546	A1	1	
	= £119.25	A1	1	SC2 £119, £120, £119.26 do NOT accept 1/1.61 and then multiplied by 192 unless obtaining one of above answers
(c)	ratio of 4:3 = 7 parts	B1	1	for 7 parts; seen or implied
	Kate pays $\$84 \times \frac{4}{7}$	M1	1	must be division by 7
	= \$48	A1	1	SC2 for 36 or 36 and 48 Condone £ for \$
(d)	approximations are 200 (and 4000)	B1	1	B1 for 200; do not accept 210
	weight is $\frac{4000}{200}$	M1	1	dep on B1; must be ÷ by 200
	= 20 kg	A1	1	accept $\frac{3940}{200} = 19.7$ kg and $\frac{3900}{200} = 19.5$ kg and $\frac{3950}{200}$ = 19.75 kg [or 19.7 or 19.8] No marks for accurate division and approximating the answer
	Total		**12**	

5(a)	£119.48	B1	1	
(b)	total repayments = £119.48×36	M1		
	= £4301.28	A1		CAO
	interest is £4301.28 – 3250			
	= £1051.28	A1	3	CAO; condone further working into part c
(c)	percentage is $\frac{1051.28}{3250}\times 100$	M1		
	=32.3%	A1	2	accept 32.4 or 32.347 or 32.35 or 32.34 32 scores M1 only
	Total		**6**	

Question	Solution	Marks	Total	Comments
6(a)	annual income is $12 \times £3782$ $= £45\,384$	B1	1	
	taxable income $= £45\,384 - 9205$	M1	1	dep on B1
	$= £36\,179$	A1	1	condone any further work [eg: part b in this part]
(b)	tax at 20% is $£32\,245 \times \frac{20}{100}$	M1	1	Part of the working for this part may be seen in part a; award any such marks in part b
	$= £\,6449$	A1	1	
	amount taxed at 40% is $£36\,179 - 32\,245$ $= £3934$	M1	1	
	tax paid at 40% is £1573.60	A1	1	
	tax paid is £8022.60	A1	1	ft from part a [need use of 40% rate] M2A2 for 8022.6
	Total		**8**	
7	$R = \sqrt[n]{\frac{A}{P}} - 1 = \sqrt[5]{\frac{3412}{2800}} - 1$	M1	1	If clearly seen even if worked out inverted
	$= \sqrt[5]{1.2185714} - 1$	B1	1	B1 for 1.21857
	$= 1.0403278 - 1$ interest rate is 4.03% per year	A1	1	M1B1 for 4% or 4.0%
	Total		**3**	
	TOTAL		**50**	