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# Free-Standing Mathematics Qualification **MATHEMATICS**

4984 – Financial Calculations  
Mark scheme

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4984  
June 2015

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Version/Stage: Version 1.0: Final

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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](http://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.**

Q	Solution	Mark	Total	Comment
1 (a)	Total repayments = $\pounds 16.10 \times 36$ $= \pounds 579.60$  Interest is $\pounds 579.60 - 500$  $= \pounds 79.60$	M1 A1    A1	      3	<p><b>As with all questions deduct the last A1 if 79.6 given as answer. £ sign not needed. Accept £79.60p</b></p> <p><b>The answer line wins; two methods, mark the one leading to the answer on the answer line.</b></p> <p><b>If no answer on the answer line, mark both and take the average mark and round down.</b></p> <p>CAO no ft</p>
1 (b)	Percentage is $\frac{79.60}{500} \times 100$ $= 15.92\%$	M1 A1	2	ft from (a) Accept 15.9 M0A0 for 115.9..
1 (c)	$APR = \frac{24 \times 79.60}{500 \times 37} \times 100$  $= 10.3$	M1A1    A1	    3	ft from (a) M1 only if 37 incorrect  CAO Accept 10.33 or 10.32 If more digits given in <b>percentage questions</b> accept if correct. Accept any truncation or rounding etc if you see the correct answer in the working.
<b>Total</b>			<b>8</b>	

<b>2</b>					
	A	B	C	D	E
1		<b>Total cost for group of four adults</b>	<b>Total cost for family of two adults and two children</b>	<b>Extra cost for family group</b>	<b>Extra cost as a percentage of total cost for four adults</b>
2	Apartments Dunas Club Fuerteventura	£1816	£2060	£244	13.4
3	Mirador del Atlantico, Playa Amadores, Gran Canaria	£1736	£1932	£196	11.3
4	Vista Blanes Apartments Cala 'n Blanes, Menorca	£1852	£2025	£173	9.3
5	Sunset Village Altinkum, Bodrum, Turkey	£1476	£1611	£135	9.1
<b>2 (a)(i)</b>	Column D		B1	1	
<b>2 (a)(ii)</b>	Any in column E All column E correct All to one decimal place		M1 A1 A1 B1	4	If a method is shown and correct but answers incorrect can gain M1 only  B1 for <b>all</b> correct  If to the nearest integer; 13, 11, 9, 9 M1 A1 for any or all correct  If to 2dp [or more than 2dp], 13.43 [or 13.44], 11.29, 9.34, 9.14 [or 9.15] M1A1 for any one of these, M1A1 A1 for all of these
<b>(b)</b>	Apartments Dunas Club, Fuerteventura		B1	1	
		<b>Total</b>		<b>6</b>	

Q	Solution	Mark	Total	Comment
3 (a)	Cost is $\pounds \frac{42}{1.17}$ $= \pounds 35.8974$ $= \pounds 35.90$	M1	3	M1 only if $\frac{1}{1.17}$ and then multiply result by 42 with an incorrect answer
		A1 A1		SC2 $\pounds 36$ , $\pounds 35.89$ 35.9 is SC2 [not in correct money]
3 (b)	Ratio of 3:4:5 = 12 parts Amount paid is $\pounds 66 \times \frac{5}{12}$ $= \pounds 27.50$	B1	3	If T&I or build up, only gain marks if obtain a quoted answer  Condone $\pounds 27.5$  SC1 for 16.5 or 22 or SC2 16.5, 22 and 27.5 unless state which is paying the most
		M1 A1		
3 (c)	Total payment is $\pounds 546 \times 3 = \pounds 1638$ $\pounds 1638 = 84\%$ of total cost for four people  Total cost for four = $\pounds 1638 \times \frac{100}{84}$ $= \pounds 1950$ Extra cost is $\pounds 1950 - \pounds 1638$ $= \pounds 312$	B1	5	If used correctly
		B1		
		M1		
		A1 A1		
<b>Total</b>			<b>11</b>	
4 (a)	June 2004	B1	1	Accept date or month between May and August 2004 or mid 2004
4 (b)	Change in price is $\pounds \frac{13}{100} \times 142000$ $= \pounds 18460$ New price is $\pounds 142\,000 - \pounds 18\,460$ $= \pounds 123\,540$	M1	2	$\frac{87}{100} \times 142000$ M1
		A1		
<b>Total</b>			<b>3</b>	

5 (a)(i)	Repayment is $\pounds 631 \times 14 \times 12$ = $\pounds 106\,008$	M1 A1	2	Do not accept misreads
5 (a)(ii)	Number of months is $\frac{114894}{491}$  = 234 months  Time is 19 years 6 months	M1  A1  A1	3	Accept their 431 + 60  Accept ft from their $\frac{114894}{491}$  19.5 years implies M1A1  CAO  SC2 19 years 5 months  Any implied ; eg allows them longer to pay in little amounts [little amounts is BOD] <b>NOT</b> cannot afford so much [total repayments are more] <b>NOT</b> cannot pay back in a short time as not earning enough
	<b>Total</b>		<b>6</b>	

Q	Solution	Mark	Total	Comment
6 (a)(i)	A person wants to stay in the house for many years  or A person requires a large mortgage	E1	1	Any sensible Accept Save money in the long term
6 (a)(ii)	A person wants to stay in the house for a short time A person requires a small mortgage	E1	1	Any sensible
6 (b)	£934.99	B2	2	B1 for £935
	<b>Total</b>		<b>4</b>	
7 (a)	Annual income is $12 \times \text{£}4075$ = £48 900 Taxable income = £48 900 – 10 000 = £38 900	B1 M1 ft A1	3	Condone and mark work in (b) shown in (a) and vice-versa  ft from a yearly amount CAO Condone if 38 900 seen and then divided by 12
7 (b)	Tax at 20% is $\text{£}31\,865 \times \frac{20}{100}$ = £6373 Amount taxed at 40% is £38 900 – 31 865 = £ 7035 Tax paid at 40% is £2814 Tax paid is £9187	M1  A1  M1  A1 A1	5	ft from (a) if needs 40%
	<b>Total</b>		<b>8</b>	<b>h</b>



<p><b>8</b></p>	<p>Initial discount is <math>x\%</math>                  Initial sale price is <math>100 - x\%</math>                  Final sale price is <math>0.8 \times (100 - x)\%</math>                  which is 24%  <math>0.8 \times (100 - x) = 24</math>  <math>\therefore 100 - x = 30</math>  <math>x = 70</math>                  Initial discount is 70%</p>	<p>M1                  A1                    m1                    A1</p>	<p>4</p>	<p>condone lack of brackets</p> <p>SC3 30%                  B1 for sight of 80% and 24%</p> <p>OR using ‘money’                  Cost now £24 was £100                  £24 is the price after 20% reduction                  £24 is 80% of the initial sale price M1                  Before this reduction                  price was <math>\frac{£24}{0.8}</math> m1                  = £30 A1                  Initial discount was <math>100 - 30</math>                  = 70% A1</p> <p>T&amp;I Full marks if correct answer; no marks otherwise</p> <p>No marks for 56</p>
	<p><b>Total</b></p>		<p><b>4</b></p>	
	<p><b>TOTAL</b></p>		<p><b>50</b></p>	