

# Homework 4 – Solutions

1)

(a)	185 ÷ 1.5 = 123.33( ...) or 185 000 000 ÷ 1 500 000 = 123.33( ...)	B1	1	Implied by 123.333( ...) or 123.3̄
(b)	47.5(0), 47.47, 118.57, 92.74	B3	3	All correct values given to the nearest penny  B2: for all values correct but inappropriate accuracy, or 3 correct values given to the nearest penny.  B1: 1 of the correct values given to the nearest penny or at least 3 correct values inappropriately rounded.
(c)	=C3/B3	B1	1	Do not penalise unnecessary brackets that would not invalidate the formula.
<b>Total</b>			<b>5</b>	

2)

1.03 seen	M1	
1750 × 1.03 <sup>4</sup>	M1	
1969.64	A1	Must be correct money notation (2dp) Allow 1970 from correct method

3)

	Starting value (£)	Interest (£)	Final value (£)
First 6 months	1900.00	22.99	1922.99
Second 6 months	1922.99	23.27	1946.26

(a)	Second six months $£1922.99 \times \frac{1.21}{100}$ Final value is £1946.26	M1		Accept 23.27
(b)	Total interest is £46.26	A1	2	SC1 for £1946.258.. or £1946.25
(c)	AER is $\frac{46.26}{1900} \times 100$  = 2.4347%  = 2.43%	B1 ft	1	Dependent on gaining M1 in part (a)
	If 22.99 again in part (a) max mark is 0 for (a), 0 for (b) and M1 for (c)	M1		
		A1	2	Without working 2% is 0 marks; 2.4 is M1 only

(a)	117 000 10 400	B1 M1A1	3	Or 117 286  Accept 10 356 or 10 000
(b)	Terraced houses have a (much) smaller average price (68 000 < 117 000) Standard deviations are very similar suggesting similar variation in prices for terraced and semi-detached	B1	2	
5)	Using 1.0684 $\frac{242415}{1.0684}$ 227 000	B1 M1 A1	3	Accept 226 895 or better

6)

(a)	Interest is 0.4 % or 0.004 times debt New debt is old debt + 0.004 of old debt which is 1.004 of old debt	E1 E1	2	
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(b)

n	A <sub>n</sub>
0	£110 000
1	£109 550
2	£109 098.20
3	£108 644.59
4	£108 189.17
5	£107 731.93

(c)	As table	B1 B1  B1  B1 M1 A1	4	First 2 rows Next 2 rows  Last 2 rows Condone 108 189.16 and 107 731.92 All to nearest penny SC2 if all within 10p
		<b>Total</b>	<b>8</b>	

(5)

(3)

(5)

(8)

(8)

CAO

# Homework 4 – Solutions

7)

(a)	Stem of 1, 2, 3, 4	B1	
	Leaves correct and ordered	B2	B1 One or two errors Count not ordered as one error 6 8 8 9 9 1 2 3 3 7 7 8 9 0 0 0 1 3 0
(b)	References 15th value in some way	B1	
(c)	Some cars are breaking the speed limit	B1	oe Most cars are under speed limit (5)

8) Each team plays 38 games (19 other teams  $\times$  2) ✓  
 Total of 380 games in 1 season ( $38 \times 20 \div 2$  – divide by 2 to avoid counting games twice) ✓

Assumption: average of 2 to 4 goals per game ✓  
 $380 \times 2 = 760$ ,  $380 \times 4 = 1,520$  ✓

Answer should be between 760 and 1,520 ✓ (5)

TOTAL: 39