Version 1.0

General Certificate Secondary of Education
January 2013

Applications of Mathematics (Pilot) 9370

Unit 1 Foundation Tier 93701F

Mark Scheme

Mark Schemes

Principal Examiners have prepared these mark schemes for practice papers. These mark schemes have not, therefore, been through the normal process of standardising that would take place for live papers.

It is not possible to indicate all the possible approaches to questions that would gain credit in a 'live' examination. The principles we work to are given in the glossary on page 3 of this mark scheme.

- Evidence of any method that would lead to a correct answer, if applied accurately, is generally worthy of credit.
- Accuracy marks are awarded for correct answers following on from a correct method. The correct method may be implied, but in this qualification there is a greater expectation that method will be appropriate and clearly shown.

Set and published by the Assessment and Qualifications Alliance.

Glossary for Mark Schemes

These examinations are marked in such a way as to award positive achievement wherever possible. Thus, for these papers, marks are awarded under various categories.

M	Method marks are awarded for a correct method which could lead to a correct answer.
A	Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
B	Marks awarded independent of method.
M Dep	A method mark dependent on a previous method mark being awarded.
B Dep	A mark that can only be awarded if a previous independent mark has been awarded.
ft	Follow through marks. Marks awarded following a mistake in an earlier step.
SC	Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
oe	Or equivalent. Accept answers that are equivalent. eg, accept 0.5 as well as $\frac{1}{2}$
[*a*, *b*]	Accept values between *a* and *b* inclusive.
25.3 …	Allow answers which begin 25.3 e.g. 25.3, 25.31, 25.378.
Use of brackets	It is not necessary to see the bracketed work to award the marks.

A1 Foundation Tier

Q	Answer	Mark	Comments
1(a)	2 × 2.15 (= 4.3)	M1	
	2 × 1.90 (= 3.8)	M1	
	Their 4.3(0) + their 3.8(0) + 1.00	M1	
	9.10	A1	A0 for 9.1
1(b)	£5 – any meal cost	M1	
	(£) 1.35, 80 p **or** 1.0(0)	A1	
	Any combination of coins that make their change.	M1	
	Fish pie and 50 p, 20 p, 10 p	A1	
2(a)	23	B1	
2(b)	30	B1	
2(c)	13 + 23 + 7 + 14 + 11 or 68	M1	5 values added. Allow 1 reading error
	17 + 11 + 13 + 20 or 61	M1	4 values added. Allow 1 reading error
	Their 68 – their 61	M1 Dep	Dep on one of previous M's plus evidence of attempt at the other total.
	7	A1	
2(c) Alt	+4, –12, +6, +6	M1	Differences seen Allow one error in reading
	4 – 12 + 6 + 6 = 4	M1	
	11 – 4	M1	
	7	A1	
3(a)	T-shirt	B1	
3(b)	Socks **or** vest	B1	Accept either answer or both
3(c)	Jumper and pyjamas	B2	B1 for at least 2 differences seen. 2.(00), 2.5(0), 5.45, 0.75, 0.55 May be seen in/next to table

Q	Answer	Mark	Comments
4(a)(i)	1014	B1	Accept 0945 (from Newcastle)
4(a)(ii)	34	B1	
4(b)	12 + 10 + 7 or 29	M1	
	61 – their 29 (= 32)	M1	
	Attempt to build up to 32	M1	Adding 12's,10's,7's with at least one total between 26 and 36
	2, 3, 1	A1	Allow Adults £12, £12, Child £10, £10, £10, Senior £7 SC3 for £24, £30, £7
4(b) Alt	Multiples of 12, 10 or 7 seen	M1	
	Any combination of multiples of 12, 10 and 7	M1	
	Combination of multiples of 12, 10 or 7 with a total between 55 and 65	M1	
	2, 3, 1	A1	Allow Adults £12, £12, Child £10, £10, £10, Senior £7 SC3 for £24, £30, £7
5	26 × 135 or 3510 or 35.1(0)	M1	
	(967 – 135) × 19.5 or 16224 or 162.24	M1	
	Their 35.10 + their 162.24	M1	Can work in pence here 3510 + 16224
	197.34 and Yes	A1	or 19734 p and 20000 p seen and Yes
	Organised response at working out cost of all units + conclusion	Q1	Strand (iii). Clear working with all 3 method marks gained and conclusion. May have incorrect units.

Q	Answer	Mark	Comments
6(a)	10, 10, 10, 11, 11, 12, 12, 13, 13, 15	M1	Ordering. All 10 or 6 from either end
	11.5	A1	
6(b)	10 + 10 + 10 + …. or 117 seen	M1	Attempt at $\sum x$
	Their 117 ÷ 10	M1	
	11.7	A1	Ignore rounding to 12 if 11.7 seen
6(c)	Her average was (close to) 12 or Mean or median rounds to/is about 12	B1	
7(a)(i)	Leisure and food	B1	
7(a)(ii)	$\frac{1}{4}$	B1	oe
7(b)(i)	240 ÷ 10 × 3 **or** 240 × 0.3	M1	
	72	A1	
7(b)(ii)	240 × 0.15	M1	oe eg build up to 24 + 12
	36	A1	
7(c)	$\frac{120}{360}$ × 240 **or** 240 ÷ 3 (= 80)	M1	
	86 – their 80	M1 Dep	
	6	A1	
8(a)	–6	B1	
8(b)	8 seen or marks on the diagram	M1	or 10 + 6 or 24 − 8
	16	A1	
8(c)	16 – –6	M1	or 16 + 6
	22	A1	SC1 for 10 if −6 and 16 seen

Q	Answer	Mark	Comments
9	1200 × 0.03	M1	Evidence of > 1000 route
	36	A1	
	1236	A1 ft	ft their 36 if M1 awarded SC1 for use of 1200 × 0.01 $\rightarrow$ 1212
10(a)	700 × 1.1	M1	
	770	A1	
10(b)	Their 770 – 596 (or 174)	M1	
	Their 174 ÷ 1.2	M1 Dep	
	145	A1 ft	ft their (a) SC1 for 596 ÷ 1.2 = 496 (…) or 497
11(a)	280 ÷ 4	M1	
	Kiwi = 70	A1	
	Yogurt = 210	A1 ft	ft 280 – their 70. Allow their 70×3 if M1 awarded. SC1 for 35 and 105
11(b)	72 × $\frac{30}{100}$ (= 21.6)	M1	
	72 + their 21.6 or 22	M1 Dep	
	93.6 or 94	A1	
	94 pence or £0.94	Q1	Strand (i) - Correct money notation ft their 93.6 rounded to nearest integer
11(b) Alt	1.3 seen	M1	
	72 × 1.3	M1	
	93.6 or 94	A1	
	94 pence or £0.94	Q1	Strand (i) - Correct money notation ft their 93.6 rounded to nearest integer. SC3 for 93p with no working.

Q	Answer	Mark	Comments
12(a)	$4x$ seen	M1	
	$4x + 20$	A1	SC1 for $x4 + 20$
12(b)	Their $4x + 20 = 2.5x + 35$	M1	
	$1.5x = 15$	M1 Dep	Combining like terms. Condone one error.
	10	A1	
12(b) Alt	One attempt at total cost for any number of slabs for both companies	M1	eg, $6 \times 4 + 20 = 44$ **and** $6 \times 2.5 + 35 = 50$
	An attempt for between 8 and 12 slabs	M1	
	10	A1	SC1 for $5 \times 4 + 20 = 40$ **and** $2.5 \times 2 + 35 = 40$
13(a)	All 4 points correctly plotted	B2	B1 for 2 or 3 $\pm \frac{1}{2}$ square. Ignore extras
13(b)	Positive	B1	
13(c)	Line of best fit drawn or reading indicated on graph	M1	
	'8.80'	A1 ft	ft their straight, increasing lobf SC1 for 7.80 to 9 if no line or mark on graph.
13(c) Alt	$\frac{8.00 + 9.80}{2}$	M1	oe Allow 7.20 or 7.60 instead of 8.00
	8.90	A1	8.50 or 8.70
13(d)	Point (8,2) circled	M1	
	Not close to lobf / other data Or other data all increase	A1	oe Reason relating to trend

Q	Answer	Mark	Comments
14	$6x + 5 = 7x - 3$	M1	oe eg, $6x + 8 = 7x$
	$x = 8$	M1	
	$6 \times 8 + 5$	M1	or $7 \times 8 - 3$
	53	A1	SC3 for 56
14 Alt 1	An attempt at $6x + 5$	M1	
	Their total +3 and check divisible by 7	M1	An 'x', 'No' or further attempt implies check
	Two further attempts	M1	
	53	A1	SC3 for 56
14 Alt 2	Multiples of 6 seen	M1	At least 3
	At least 2 numbers in sequence for $6x + 5$	M1	Any 2 from 11, 17, 23, 29, 35, 41, 47, 53(…)
	At least 2 numbers in sequence for $6x + 5 + 3$	M1	Any 2 from 14, 20, 26, 32, 38, 44, 50, 56(…)
	53	A1	SC3 for 56
14 Alt 3	$5 + 3$ (= 8)	M1	Spare sweets
	8 boys	M1	One spare to each boy
	$6 \times 8 + 5$	M1	
	53	A1	SC3 for 56