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# General Certificate of Secondary Education
# June 2011

## Mathematics 43602F
## Foundation
## Unit 2

# Final

# *Mark Scheme*

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

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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.



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**UMS conversion calculator** www.aqa.org.uk/umsconversion

**The following abbreviations are used on the mark scheme:**

| | |
|---|---|
| **M** | Method marks awarded for a correct method. |
| **M dep** | A method mark which is dependent on a previous method mark being awarded. |
| **A** | Accuracy marks awarded when following on from a correct method. It is not necessary always to see the method. This can be implied. |
| **B** | Marks awarded independent of method. |
| **Q** | Marks awarded for quality of written communication. |
| **ft** | Follow through marks. Marks awarded for correct working following a mistake in an earlier step. |
| **SC** | Special Case. Marks awarded for a common misinterpretation which has some mathematical worth. |
| **oe** | Or equivalent. |
| **[*a*, *b*]** | Accept values between $a$ and $b$ inclusive. |

**UNIT 2 FOUNDATION TIER 43602F**

| | | | |
|---|---|---|---|
| 1a | 14 and 15 | B1 | Either order |
| 1b | 31 | B1 | |
| 1c | 17 | B1 | |
| 1d | 42 | B1 | |
| 1e | 49 | B1 | |

| | | | |
|---|---|---|---|
| 2a | (2, 5) | B1 | |
| 2b | Point (6, 1) plotted | B1 | |
| 2c | (6, 5) | B1 ft | ft if (6, 1) is wrongly plotted but their D completes a rectangle |
| 2d | (4, 3) | B1 ft | ft for rectangle |

| | | | |
|---|---|---|---|
| 3 | 5 + 9 or 14 or 10 + 18 | M1 | |
| | 28 | A1 | |

| | | | |
|---|---|---|---|
| 4 | Valid mathematical statement for 21 | B1 | eg in the 7 times table<br>Not a multiple of 5 |
| | Valid mathematical statement for 25 | B1 | eg square number or factor of 50 |

| | | | |
|---|---|---|---|
| 5 | 3 6 9 12 18<br>8 or 20 or 12 or 4 or 8<br>20 5 10 15 5 | B3 | B2 total 31 with 2 correct multiples<br>B1 total 31 with 1 correct multiple<br>or three correct multiples but total not 31<br>or listing multiples of 3, 4 and 5 (minimum of two multiples of each number) |

| | | | |
|---|---|---|---|
| 6 | 40 ÷ 8 or 5 × 8 (= 40) | M1 | oe eg 8, 16, 24, 32 … seen |
| | 5 | A1 | |

| | | | |
|---|---|---|---|
| 7a | D or (£)131 750 | B1 | |
| 7b | A or (£)132 500 | B1 | |
| 7c | 132 500 – 131 750 | M1 | ft their answer to parts (a) and (b) |
| | 750 | A1 ft | ft their answer to parts (a) and (b) |
| 7d | 13 240 | B1 | Allow 13 240.0 or 13 240.00 |

| | | | |
|---|---|---|---|
| 8a | 11 or –11 or both | B1 | |
| 8b | $45 \div 5 \times 3$ or $45 \times 3 \div 5$ | M1 | oe eg $\frac{60}{100} \times 45$ |
| | 27 | A1 | |
| 8c | $\frac{8}{100} \times 150$ or $8 \times 1.5$ or $8 \div 2 \times 3$ | M1 | oe eg 10% = 15 (1% = 1.5)<br>2% = 3 so 8% = 15 – 3<br>or 8% = $4 \times 3$ |
| | 12 | A1 | oe eg 12.0 or 12.00 |

| | | | |
|---|---|---|---|
| 9a | Shows that $5 \div 2$ must be done first so LHS = $17 - 2\frac{1}{2} + 4$ | B1 | $2\frac{1}{2}$ or 2.5 seen is enough |
| 9b | $(17 - 5) \div 2 + 4 = 10$ | B1 | |
| 9c | $(17 - 5) \div (2 + 1) \times 4 = 16$ | B1 | |

| | | | |
|---|---|---|---|
| 10 | Sight of 12p or 24p or 36p or (£)1.2(0) or (£)3.6(0) | M1 | eg 0.12 or 0.24 or 0.36 |
| | 7200 ÷ their 36 (= 200) or 72 ÷ their 3.60 | M1 dep | oe |
| | 20 | A1 | SC2 60 |
| | All calculations and working clearly shown | Q1 | Strand (iii)<br>Must have both Ms awarded |

| | | | |
|---|---|---|---|
| 11a | 26 | B1 | |
| | 80 | B1 ft | |
| 11b | ((6) – 4) ÷ 2 or (6) ÷ 2 – 2 | M1 | Condone missing brackets |
| | 1 | A1 | |
| | (their 1 – 4) ÷ 2 or their 1 ÷ 2 – 2 | M1 | |
| | $-\frac{3}{2}$ | A1 | oe |

| | | | |
|---|---|---|---|
| 12 | 5647 – 5345 or 302 | M1 | |
| | $200 \times 24$ or 4800 or 48(.00) | M1 | |
| | their $(302 - 200) \times 15$ or 1530 or 15.3(0) | M1 | oe |
| | 6330 or 63.3(0) | A1 | |
| | their 63.30 | Q1 | Strand (i)<br>Correct money notation in £<br>Do not accept 63.3 |

| | | | |
|---|---|---|---|
| 13 | $51 = 3 \times 17$ | B1 | oe Multiplications **must** be shown any order |
| | $55 = 5 \times 11$ | B1 | |
| | $58 = 2 \times 29$ | B1 | |

| | | | |
|---|---|---|---|
| 14 | Any two of 800 or $2^2$ (or 4) or 10 seen | M1 | |
| | $800 \div 40$ or $200 \div 10$ or $80 \div 4$ | M1 | oe |
| | 20 | A1 | |

| | | | |
|---|---|---|---|
| 15 | (50 – 43) red or 7 red<br>or 14 (red)<br>or 36 (blue and yellow) | M1 | R + 3Y + Y = 43<br>or 2R + 3Y + Y = 50 oe<br>or R = 7 |
| | their $36 \div 4$ | M1 dep | 4Y = 43 – 7 oe |
| | 9 | A1 | |

| | | | |
|---|---|---|---|
| 16a | Plan A | B1 | |
| | Valid reason | B1 | eg cheaper (for 800 minutes) |
| 16b | Attempt at any two readings from Plan B slope | M1 | eg (600, 30), (700, 60), (800, 90), (900, 120), (1000, 150)<br>need not be coordinates<br>eg 600(min), (£)30<br>or (£)30, 600(min) |
| | Compares cost and time<br>or 6000 (÷) 200 or 60 (÷) 200 | M1 dep | oe<br>eg (£)30 in 100 (minutes)<br>(£)120 in 400 (minutes) |
| | 30p or £0.30 | A1 | |

| | | | |
|---|---|---|---|
| 17a | $(5x + 3 =) 3x + 6$ | B1 | |
| | $5x$ – their $3x$ = their 6 – 3<br>or $2x = 3$ | M1 | oe |
| | 1.5 | A1 ft | oe<br>ft for linear equation if B0 scored |
| 17b | $2x + 32$ or $4x - 20$ | M1 | Accept $ax + ab$ for M1 |
| | $6x + 12$ or $6(x + 2)$ | A1 | |
| | $a = 6$ and $b = 2$ | A1 ft | ft from their $6x + 12$ if M1 earned<br>SC2 $a = 6$ and $b = 12$<br>SC1 $a = 6$ |