



**General Certificate of Secondary Education
November 2010**

Mathematics

43053F

Foundation

Module 3

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.

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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. |
| 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. |

MODULE 3 FOUNDATION TIER

43053F

| | | | |
|---|------|----|--|
| 1 | 3.88 | B1 | |
|---|------|----|--|

| | | | |
|------|--|-------|--|
| 2a | 16 (days) | B1 | |
| | 5 (hours) | B1 | |
| 2bi | 5th (March) | B1 | |
| 2bii | 21 | B1 | |
| | $365 \div \text{their } 21 (= 17.38\dots)$ | M1 | $365 \div 16 (= 22.81\dots)$ |
| | 17 | A1 ft | ft any decimal truncated after M1 awarded SC1 $3 \times 6 = 18$ |

| | | | |
|----|------------------------|----|--|
| 3a | 8 and 4 | B2 | B1 for a total of 12 B1 ready salted value is double salt and vinegar value |
| 3b | $\frac{5}{20}$ | M1 | oe Allow '5 out of 20' |
| | $\frac{1}{4}$ | A1 | |
| 3c | $3 \div 20 \times 100$ | M1 | oe 15 out of 100 or $\frac{15}{100}$ |
| | 15 | A1 | SC1 0.15 |

| | | | |
|----|---|----|---|
| 4a | 1, 2, 6 or 1, 3, 5 or 2, 3, 4 (any order) | B2 | B1 for square number total eg 2, 2, 5 or 3, 3, 3 |
| 4b | 2, 2, 2, 2 | B1 | |
| 4c | All primes used and prime total and all dice numbers 2, 2, 2, 2, 3 or 2, 2, 2, 2, 5 or 2, 2, 3, 3, 3 or 2, 2, 3, 5, 5 or 2, 2, 5, 5, 5 or 3, 3, 3, 3, 5 or 3, 3, 3, 5, 5 or 3, 5, 5, 5, 5 | B2 | B1 all primes used or primes total eg 3, 3, 3, 3, 3 (primes used, not prime total) eg 1, 1, 1, 1, 1 (primes not used, prime total) Allow, for B1 (but not B2) numbers used which are > 6 if either other condition met eg 2 2 2 2 11 or 2 3 5 7 11 |

| | | | |
|----|---------------------|----|----------------|
| 5a | $600 \times 2.1(0)$ | M1 | |
| | 1260 | A1 | SC1 digits 126 |
| 5b | $121 \div 2.2(0)$ | M1 | |
| | 55 | A1 | |

| | | | |
|----|-------------------|-------|--|
| 6a | 0.42×760 | M1 | oe $760 \div 100 \times 42$ |
| | 319.2 | A1 | oe M1 A0 440.8 |
| 6b | 300 | B1 ft | ft from any number 2 sf or more or correct |

| | | | |
|---|---------------------------|----|----|
| 7 | $\frac{3}{4} \times 140$ | M1 | oe |
| | $0.15 \times 8 \times 60$ | M1 | oe |
| | 105 or 72 | A1 | |
| | 33 | A1 | |

| | | | |
|---|---------------------------------------|--------|------------------------------------|
| 8 | $800 \div (2 + 7 + 11)$ | M1 | $800 \div 20 (= 40)$ |
| | Any one of 2, 7, 11 \times their 40 | M1 dep | |
| | 80, 280, 440 | A1 | SC2 correct answers in wrong order |

| | | | |
|---|--|--------|---|
| 9 | $6 \times 12 + 5$ | M1 | 77 |
| | their 77×2.54 | M1 dep | |
| | No and 1.955 or 1.9558 or 1.956 or 1.96 or 195.5 or 195.58 or 195.6 or 196 | A1 | SC2 No and 198 (.12) Yes and 192.7 or 1.927 Yes and 192.5 or 1.925 SC1 one of these numbers with no decision or incorrect decision |
| | Alternative method | | |
| | $6 \times 12 + 5$ | M1 | 77 |
| | $195 \div 2.54$ | M1 | |
| | No and 77 and 76.7(...) or 76.8 | A1 | |

| | | | |
|-----|----------------------|----|--|
| 10a | Seventy four million | B1 | |
| 10b | 480 510 | B1 | |
| 10c | 3900 | B1 | |

| | | | |
|-----|---------------------------------|--------|------------|
| 11a | 27 | B1 | |
| 11b | $60 \div 15$ | M1 | |
| | 4 | A1 | |
| 11c | 3×42 or 20×15 | M1 | 126 or 300 |
| | their 126 + their 300 | M1 dep | |
| | 426 | A1 | SC2 2982 |

| | | | |
|----|---------------------------|----|--------------|
| 12 | 2 and 10 in missing boxes | B1 | |
| | 5 and 8 in missing boxes | B1 | Either order |

| | | | |
|-----|----------------|----|------------------------------------|
| 13a | Never true | B1 | Accept any indication in each part |
| 13b | Always true | B1 | |
| 13c | Never true | B1 | |
| 13d | Sometimes true | B1 | |

| | | | |
|----|---|--------|--|
| 14 | $10 - 4 \times 0.75$ (-1.6(0)) | M1 | oe 5.4(0) or 540 or 7(.00) or 700 |
| | their $5.40 \div 0.60$ or their $7(.00) \div 0.60$ | M1 dep | their $540 \div 60$ or their $700 \div 60$ |
| | 9 | A1 | No errors seen |
| | Alternative method | | |
| | $4 \times 0.75 + 1.6(0)$ | M1 | 4.6(0) or 460 |
| | their 4.6 + at least $8 \times 60(p)$ | M1 | oe |
| | 9 | A1 | No errors seen |

| | | | |
|-----|---------------------------------------|----|------------------------|
| 15a | Chang | B1 | 10.08 |
| 15b | Yes and 10.1 or indicates all 10.1 | B1 | oe Do not accept 10.10 |

| | | | |
|-----|-----|----|--|
| 16a | -5 | B1 | |
| 16b | 14 | B1 | |
| 16c | -10 | B1 | |
| 16d | 16 | B1 | |

| | | | |
|-----|--|-------|--|
| 17a | $\frac{1}{2} \times \frac{1}{3}$ | M1 | |
| | $\frac{1}{6}$ | A1 | oe fraction SC1 $0.1\dot{6}$ or $16.\dot{6}\%$ (oe) |
| 17b | Appropriate common denominator with at least one numerator correct eg $\frac{1}{20} (+) \frac{\text{their } 8}{20}$ | M1 | oe 0.05 (+) 0.4 |
| | $\frac{9}{20}$ | A1 | oe 0.45 or $\frac{18}{40}$ or $\frac{45}{100}$ |
| | $\frac{11}{20}$ | B1 ft | ft $1 - \text{their } \frac{9}{20}$ (must be a fraction) oe $\frac{55}{100}$ SC2 0.55 or 55% |

| | | | |
|----|-----------------------------|----|------------------|
| 18 | Any two of 40, 5 and 20 | M1 | $\frac{200}{20}$ |
| | 10 or 10.2 or 10.25 or 10.3 | A1 | oe |

| | | | |
|-------|---------------------------------------|----|----------------------------------|
| 19a | A number between 0 and 1 | B1 | |
| 19b | $\frac{1}{1} = 1$ or $1 \times 1 = 1$ | B1 | $1 \div 1 = 1$ or '1 over 1' = 1 |
| 19ci | 7^9 | B1 | |
| 19cii | 7^6 | B1 | |