Comparison of key skills specifications 2000/2002 with 2004 standardsX015461July 2004Issue 1

Mark Scheme (Results)

Summer 2023

Pearson Edexcel International GCSE

In Mathematics A (4MA1) Paper 2FR

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**General Marking Guidance**

* All candidates must receive the same treatment.  Examiners must mark the first candidate in exactly the same way as they mark the last.
* Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
* Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
* There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
* All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme.  Examiners should also be prepared to award zero marks if the candidate’s response is not worthy of credit according to the mark scheme.
* Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
* When examiners are in doubt regarding the application of the mark scheme to a candidate’s response, the team leader must be consulted.
* Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
* **Types of mark**
  + M marks: method marks
  + A marks: accuracy marks
  + B marks: unconditional accuracy marks (independent of M marks)
* **Abbreviations**
  + cao – correct answer only
  + ft – follow through
  + isw – ignore subsequent working
  + SC – special case
  + oe – or equivalent (and appropriate)
  + dep – dependent
  + indep – independent
  + awrt – answer which rounds to
  + eeoo – each error or omission
* **No working**

If no working is shown, then correct answers normally score full marks.

If no working is shown, then incorrect (even though nearly correct) answers score no marks.

* **With working**

If there is a wrong answer indicated on the answer line always check the working in the body of the script (and on any diagrams) and award any marks appropriate from the mark scheme.

If it is clear from the working that the “correct” answer has been obtained from incorrect working, award 0 marks.

If a candidate misreads a number from the question. E.g. Uses 252 instead of 255; method marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review. If there is a choice of methods shown, mark the method that leads to the answer on the answer line; where no answer is given on the answer line, award the lowest mark from the methods shown.

If there is no answer on the answer line, then check the working for an obvious answer.

* **Parts of question**

Unless allowed by the mark scheme, the marks allocated to one part of the question CANNOT be awarded to another,

| **International GCSE Maths** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Where the mark scheme states otherwise, the correct answer, unless clearly obtained by an incorrect method, should be taken to imply a correct method** | | | | | | |
| **Q** | | **Working** | **Answer** | **Mark** | **Notes** | |
| **1** | (a)(i) |  | 20 | 1 | B1 cao | |
|  | (ii) |  | 25 | 1 | B1 cao | |
|  | (b)(i) |  | cube | 1 | B1 ignore misspelling | |
|  | (ii) |  | factor | 1 | B1 ignore misspelling | |
|  |  |  |  |  |  | **Total 4 marks** |

| **2** | (a) |  | 8 | 1 | B1 cao | |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  | Correct shape drawn | 1 | B1 | |
|  | (c) |  | 2 | 1 | B1 cao | |
|  | (d) |  | 240 | 1 | B1 cao | |
|  |  |  |  |  |  | **Total 4 marks** |

| **3** | (a) |  | Neptune | 1 | B1 cao allow −210 | |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  | 630 | 1 | B1 allow −630 | |
|  |  |  |  |  |  | **Total 2 marks** |

| **4** | (a)(i) |  | (2, 6) | 1 | B1 cao | |
| --- | --- | --- | --- | --- | --- | --- |
|  | (ii) |  | (−4, 3) | 1 | B1 cao | |
|  | (b) |  | Cross at (4, 2) | 1 | B1 cao | |
|  |  |  |  |  |  | **Total 3 marks** |

| **5** | (a) |  |  | 1 | B1 allow 0.67 or better | |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  | and | 1 | B1 | |
|  | (c) |  | 0.7 | 1 | B1 allow 0.7(000…) | |
|  |  |  |  |  |  | **Total 3 marks** |

| **6** | (a) |  | 8 | 1 | B1 cao | |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) | 40 – (“8” + 14 + 11) oe or 40 – 33 or  or 18 – 11 or 21 – 14 or 15 – “8” |  | 3 | M1 for 40 minus their 3 readings  (allow one incorrect reading from 8 or 14 or 11) | |
|  |  | 7 |  |  | A1(ft for 15 – “8” or 40 – (“8” + 14 + 11)) | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | Correct height of bar |  | A1 ft dep on M1  ± half square tolerance for height of bar  Award 3 marks for a fully correct bar of height of 7 | |
|  |  |  |  |  |  | **Total 4 marks** |

| **7** |  | 1620 × 0.9(0) (= 1458) |  | 4 | M1 | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | 1620 ÷ 1.08 (= 1500) |  |  | M1 | |
|  |  | “1500” – “1458” |  |  | M1 | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 42 |  | A1 | |
|  |  |  |  |  | SC B1 for  1620 ÷ 0.9 (= 1800) **and** 1620 × 1.08 (= 1749.6(0))  or for “1800” – “1749.6(0)” (= 50.4(0)) | |
|  |  |  |  |  |  | **Total 4 marks** |

| **8** | (a) | 3 × 25 + 30 + 42 or 75 + 30 + 42 |  | 2 | M1 | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 147 |  | A1 | |
|  | (b) | 220 – 65 − 30 (= 125) or 220 – 95 (= 125) |  | 3 | M1 | |
|  |  | “125” ÷ 25 or 5 × 25 (= 125) |  |  | M1 | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 5 |  | A1 | |
|  |  |  |  |  |  | **Total 5 marks** |

| **9** | (a) |  | 60 | 1 | B1 cao | |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b)(i) |  | 58 | 1 | B1 | |
|  | (ii) |  | correct reason | 1 | B1 for angles in a triangle add up to 180°  or  for angles in a triangle add up to 180° | |
|  |  |  |  |  |  | **Total 3 marks** |

| **10** |  | (= 96) oe |  | 4 | M1 | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | “96” × 46 (= 4416) oe |  |  | M1 | |
|  |  | “4416” – 120 × 28 or  “4416” – “3360” |  |  | M1 | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 1056 |  | A1 | |
|  |  |  |  |  |  | **Total 4 marks** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **11** |  | |  |  |  |  | | --- | --- | --- | --- | |  | **Seoul** | **Tokyo** | **Total** | | **Business** | 51 | 35 | 86 | | **Economy** | 25 | 69 | 94 | | **Total** | 76 | 104 | 180 | | correct table | 3 | B3 for all correct entries  (B2 for 6 or 7 or 8 correct entries)  (B1 for 3 or 4 or 5 correct entries) | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* |  |  |  | **Total 3 marks** |

| **12** | (a) | [7.3 – 7.7] × 3 |  | 2 | M1 | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 22.5 |  | A1 accept an answer in the range  21.9 – 23.1 | |
|  | (b) | for stating 8 cm **or**  within or on guidelines on overlay |  | 1 | B1 | |
|  |  | for ⨯ from B with a bearing of 110° **or**  ⨯ plotted within or on guidelines on overlay **or**  line drawn within or on guidelines |  | 1 | B1 | |
|  |  |  | Correct position | 1 | B1 within or on guidelines | |
|  |  |  |  |  |  | **Total 5 marks** |

| **13** |  | oe or 0.28 × 100 oe |  | 2 | M1 | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 28 |  | A1 | |
|  |  |  |  |  |  | **Total 2 marks** |

| **14** |  | 135 ÷ (2 + 7) (= 15) oe **or**  135 ÷ 9 (= 15) oe **or**  9 × 15 (= 135) oe |  | 4 | M1 | | M2 for  or |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | 2 × “15” (= 30) oe **or**  7 × “15” (= 105) oe |  |  | M1 | |
|  |  | “30” × 8 + “105” × 5 (= 765) oe **or**  240 + 525 (= 765) oe |  |  | M1 | | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 65 |  | A1 | | |
|  |  |  |  |  |  | **Total 4 marks** | |

| **15** | (a) | oe or 138 ÷ “6” |  | 2 | M1 | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 23 |  | A1 | |
|  | (b) | oe or 90 – 18 (= 72) |  | 3 | M1 | |
|  |  | or “72” ÷ 3 (= 24) |  |  | M1 | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* |  |  | A1 oe or 0.26(666…) or 26(.666…)% truncated or rounded | |
|  |  |  |  |  |  | **Total 5 marks** |

| **16** | (a) |  |  | | 1 | B1 accept | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  |  | | 1 | B1 accept | |
|  | (c) | oe or oe oe or  oe or oe or |  | | 3 | M1 | |
|  |  | oe or  oe |  | |  | M1 | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | −9.75 | |  | A1 oe eg | |
|  | (d) | 25 ± …….  **or**  ……. – 12  **or**  (−5)2 – 4 × 3 or (−5)2 – 4(3) or  −5 × −5 − 4 × 3 or −5 × −5 – 4(3) |  | | 2 | M1 for either 25 or –12 in the correct place **or** the correct substitution shown with brackets around –5 | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 13 | |  | A1  (M0A0 for −37 without any working) | |
|  | (e) |  |  | | 2 | M1 for any 3 correct terms **or** for 4 out of 4 correct terms ignoring signs  **or**  for … **or** for … | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* |  | |  | A1 oe  Ignore solutions/roots if correct expansion seen | |
|  |  |  |  | |  |  | **Total 9 marks** |
| **17** |  | 9, 18, 27, 36 **and** 12, 24, 36  **or**  36  **or**  a multiple of 36  **or**  (9 × 12 =) 108  **or**  32 × 4 (= 36) (from Venn diagram or table) | |  | 4 | M1 for at least two multiples of 9 and 12 **or**  36  **or**  a multiple of 36 | |
|  |  | “4” × 7.6(0) or “3” × 4.8(0) **or**  “30.4” or “14.4” **or**  “4*n*” × 7.6(0) or “3*n*” × 4.8(0) | |  |  | M1 for a correct method to find the cost of 4 or 8 or 12 etc of packets of pens  **or** 3 or 6 or 9 etc packets of pencils | |
|  |  | “4” × 7.6(0) + “3” × 4.8(0)  **or**  “30.4” + “14.4”  **or**  “4*n*” × 7.6(0) + “3*n*” × 4.8(0) | |  |  | M1 for a correct combination of  number of packets of pens × 7.6(0) **+**  number of packets of pencils × 4.8(0)  with an intention to add, eg   |  |  | | --- | --- | | pens pencils |  | | 4 × 7.60 + 3 × 4.8 = | 44.8(0) | | 8 × 7.60 + 6 × 4.8 = | 89.6(0) | | 12 × 7.60 + 9 × 4.8 = | 134.4(0) | | 16 × 7.60 + 12 × 4.8 = | 179.2(0) | | 36 × 7.60 + 27 × 4.8 = | 403.2(0) | | 48 × 7.60 + 36 × 4.8 = | 537.6(0) | | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | | 44.8(0) |  | A1 allow 45 if 44.8(0) seen  allow 4480 p or pence if £ sign crossed out  M3A0 for 44.8*n* where *n* is an integer (eg 134.4(0)) | |
|  |  |  | |  |  |  | **Total 4 marks** |
| **18** |  | 3.3 or or or  oe or 180 + 18 or 198 oe |  | | 3 | B1 for working out the time in hours or minutes | |
|  |  | 515 ÷ 3.3 or 515 ÷or 515 ÷or  oe |  | |  | M1  Units must be consistent | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 156 | |  | A1 allow 156 – 156.1  SCM1 for 515 ÷ 3.18 (= 161.9… or 162) | |
|  |  |  |  | |  |  | **Total 3 marks** |

| **19** |  |  |  | 2 | M1 for −7*n* + *k* (*k* ≠ 45) or  −7 × *n* + *k* (*k* ≠ 45) or  *n* × −7 + *k* (*k* ≠ 45)  (*k* may be zero or absent or negative) | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 45 – 7*n* |  | A1 oe  eg 45 – 7 × *n* oe or  −7 × *n* + 45 oe or  *Un* = 45 – 7*n*  oe or  38 – 7(*n* – 1) oe  NB: award full marks for eg  *x* = 45 – 7*n* oe or  *n*th term = −7 × *n* + 45 oe or  but only M1 for *n* = 45 – 7*n* oe | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* |  |  |  | **Total 2 marks** |

| **20** |  | (= 60 000) oe or  (= 60 000) oe or  (2 × 9600) + 40 800 (= 60 000) oe |  | 4 | M1 for working out the area of the trapezium | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | [60 000] ÷ 10 000 (= 6) or  10 000 × 6 (= 60 000) |  |  | M1 ft their area (must come from a two dimensional area)  Allow | |
|  |  | 49 650 ÷ [6] |  |  | M1 dep on either previous M1 ft their number of hectares  Allow | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 8275 |  | A1 | |
|  |  |  |  |  |  | **Total 4 marks** |

| **21** | (a) | 7 × 5 × 14 (= 490) oe **or**  7 × 14 (= 98) **and** 400 ÷ 5 (= 80) |  | 4 | M1 for working out the pay per week or pay per day | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | “490” – 400 (= 90) **or**  “98” – “80” (= 18) **or**  “98” ÷ “80” oe **or “**490” ÷ 400 oe **or** 1.225 oe |  |  | M1 | |
|  |  | oe **or**  oe **or**  oe **or**  oe **or**  “1.225” – 1 (= 0.225) |  |  | M1 dep on M2 | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 22.5 |  | A1 oe allow 23% with M3 awarded | |
|  | (b) | E.g. 1 − 0.06 (= 0.94) or  100(%) − 6(%) (= 94(%)) or  (= 245) oe |  | 3 | M1 | |
|  |  | E.g. 23 030 ÷ “0.94” or  23 030 ÷ “94” × 100 or  23 030 × 100 ÷ “94” or  “245” × 100 |  |  | M1 | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 24 500 |  | A1 | |
|  |  |  |  |  |  | **Total 7 marks** |

| **22** | (a) |  | 1 | 1 | B1 cao | |
| --- | --- | --- | --- | --- | --- | --- |
|  | (b) |  | −6 | 1 | B1 Allow 3−6 | |
|  |  |  |  |  |  | **Total 2 marks** |

| **23** | (a) | or or  or or  oe or oe |  | 2 | M1 for a correct first step  Condone = rather than > or any other sign for this mark. | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* |  |  | A1 oe eg  (sight of correct answer in working space and just (*x* =) ⎼2 on answer line gains M1 only) | |
|  | (b) |  |  | 3 | B3 for all 3 correct  Allow ,and  B2 for 2 correct  B1 for 1 correct  Allow < and > signs  SCB2: , and (for all 3)  Allow < and > signs | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* |  |  |  | **Total 5 marks** |

| **24** |  | or or  oe or oe |  | 6 | M1 | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | or  or  or  oe |  |  | M1 for finding *BC* or *AD*  Can be written on the diagram | |
|  |  | (= 42.4(024)…) or  or  or |  |  | M1 for finding *CD* or *BA*  Can be written on the diagram | |
|  |  | (*r* =)“42.4(024…)” ÷ 2*π* (= 6.74(855…)) |  |  | M1 for finding the radius of the cylinder | |
|  |  | (*V* =) *π* × “6.74(855…)”2 × “26.4(959…)” |  |  | M1 dep on previous M mark for the use of | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 3790 |  | A1 allow answers in the range  3737 – 3794  Accept answers in standard form | |
|  |  |  |  |  |  | **Total 6 marks** |

| **25** |  | 104 × 5 (= 520) or 127 × 7 (= 889) or  oe |  | 3 | M1 | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | “889” – “520” – 132 or “369” – 132 or  oe or oe |  |  | M1 (*x* = Sunday) | |
|  |  | *Correct answer scores full marks (unless from obvious incorrect working)* | 237 |  | A1 | |
|  |  |  |  |  |  | **Total 3 marks** |

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