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

Mark Scheme

Mock Set 5

Pearson Edexcel GCSE (9 – 1)

In Mathematics (1MA1)

Foundation (Calculator) Paper 3F

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Spring 2020

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Paper 3F Mock Set 5 Mark Scheme v1.0

**General marking guidance**

These notes offer general guidance, but the specific notes for examiners appertaining to individual questions take precedence.

**1** All candidates must receive the same treatment. Examiners must mark the last candidate in exactly the same way as they mark the first.

Where some judgement is required, mark schemes will provide the principles by which marks will be awarded; exemplification/indicative content will not be exhaustive. When examiners are in doubt regarding the application of the mark scheme to a candidate’s response, the response should be sent to review.

**2** All the marks on the mark scheme are designed to be awarded; mark schemes should be applied positively. Examiners should also be prepared to award zero marks if the candidate’s response is not worthy of credit according to the mark scheme. If there is a wrong answer (or no 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.

**Questions where working is not required**: In general, the correct answer should be given full marks.

**Questions that specifically require working**: In general, candidates who do not show working on this type of question will get no marks – full details will be given in the mark scheme for each individual question.

**3 Crossed out work**

This should be marked **unless** the candidate has replaced it with

an alternative response.

**4 Choice of method**

If there is a choice of methods shown, mark the method that leads to the answer given on the answer line.

If no answer appears on the answer line, mark both methods **then award the lower number of marks.**

**5** **Incorrect method**

If it is clear from the working that the “correct” answer has been obtained from incorrect working, award 0 marks. Send the response to review for your Team Leader to check.

**6** **Follow through marks**

Follow through marks which involve a single stage calculation can be awarded without working as you can check the answer, but if ambiguous do not award.

Follow through marks which involve more than one stage of calculation can only be awarded on sight of the relevant working, even if it appears obvious that there is only one way you could get the answer given.

**7** **Ignoring subsequent work**

It is appropriate to ignore subsequent work when the additional work does not change the answer in a way that is inappropriate for the question or its context. (eg. an incorrectly cancelled fraction when the unsimplified fraction would gain full marks).

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect (eg. incorrect algebraic simplification).

**8** **Probability**

Probability answers must be given as a fraction, percentage or decimal. If a candidate gives a decimal equivalent to a probability, this should be written to at least 2 decimal places (unless tenths).

Incorrect notation should lose the accuracy marks, but be awarded any implied method marks.

If a probability fraction is given then cancelled incorrectly, ignore the incorrectly cancelled answer.

**9** **Linear equations**

Unless indicated otherwise in the mark scheme, full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously identified in working (without contradiction elsewhere). Where the correct solution only is shown substituted, but not identified as the solution, the accuracy mark is lost but any method marks can be awarded (embedded answers).

**10 Range of answers**

Unless otherwise stated, when an answer is given as a range (e.g 3.5 – 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and all numbers within the range.

**11 Number in brackets after a calculation**

Where there is a number in brackets after a calculation E.g. 2 × 6 (=12) then the mark can be awarded **either** for the correct method, implied by the calculation **or** for the correct answer to the calculation.

**12 Use of inverted commas**

Some numbers in the mark scheme will appear inside inverted commas E.g. “12” × 50 ; the number in inverted commas cannot be any number – it must come from a correct method or process but the candidate may make an arithmetic error in their working.

**13 Word in square brackets**

Where a word is used in square brackets E.g. [area] × 1.5 : the value used for [area] does **not** have to come from a correct method or process but is the value that the candidate believes is the area. If there are any constraints on the value that can be used, details will be given in the mark scheme.

**14 Misread**

If a candidate misreads a number from the question. Eg. uses 252 instead of 255; method or process marks may be awarded provided the question has not been simplified. Examiners should send any instance of a suspected misread to review.

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| **Guidance on the use of abbreviations within this mark scheme** |
| **M** method mark awarded for a correct method or partial method**P** process mark awarded for a correct process as part of a problem solving question**A** accuracy mark (awarded after a correct method or process; if no method or process is seen then full marks for the question are implied but see individual mark schemes for more details)**C** communication mark awarded for a fully correct statement(s)  with no contradiction or ambiguity **B** unconditional accuracy mark (no method needed)**oe** or equivalent**cao** correct answer only**ft** follow through (when appropriate as per mark scheme)**sc** special case**dep** dependent (on a previous mark)**indep** independent**awrt** answer which rounds to**isw** ignore subsequent working |

| **Paper: 1MA1/3F** |
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| **Question** | **Answer** | **Mark** | **Mark scheme** | **Additional guidance**  |
| 1 |  | $$\frac{9}{10}$$ | B1 | cao |  |
| 2 |  | 4 | B1 | cao |  |
| 3 |  | 4.5 | B1 | accept 4 $\frac{1}{2}$ ,$ \frac{9}{2}$  |  |
| 4 |  | 12*kt* | B1 |  | Accept 12, *k*, *t* in any order  |
| 5 |  | 169 | B1 | cao |  |
| 6 |  | 7.99 | P1 | for a first step, eg $\frac{1}{2}$ × 50 (= 25) **or** 3 × 64 (= 192) **or** 2 × 42 (= 84) **or** 1 $\frac{1}{2}$ × 6.(00) (= 9.00)  | Accept £ or p used as units (may be inconsistent for first 2 marks) |
|  |  |  | P1 | for process to find the cost of all 4 items, eg $\frac{1}{2}$ × 50 (= 25) **and** 3 × 64 (= 192) **and** 2 × 42 (= 84) **and** 1 $\frac{1}{2}$ × 6.(00) (= 9.00)  |  |
|  |  |  | P1 | for a process to find money spent, eg “25” + “192” + “84” + “900” (= 1201) | Allow this mark and the next for 3 items onlyUnits must be consistent but may be £ or p (does not have to be stated as such). |
|  |  |  | P1 | for process to find the change given, eg 2000 – “1201” (= 799)  |
|  |  |  | A1 | cao |  |
| 7 |  | ˃, ˂, =, = | B3 | for all 4 correct |  |
|  |  |  | (B2 | for 3 correct) |  |
|  |  |  | (B1 | for 1 or 2 correct) |  |
| 8 | (a) | prism | B1 | for (triangular) prism | Accept incorrect spelling provided intention is clear |
|  | (b) | 5 | B1 | cao |  |
| 9 | (a) | 6*m* | B1 | cao |  |
|  | (b) | 7*n* – 1 | M1  | for 1 term out of 2 terms correct, eg 7*n* or –1 |  |
|  |  |  | A1 | for 7*n* – 1  |  |
| 10 |  | $\frac{3}{5}$ $\frac{5}{8}$ $ \frac{7}{11 } $ $\frac{2}{3}$ | M1  | converts fractions to a common equivalent form, at least two conversions correct eg decimals, percentages or fractions with a common denominator, **or** any 3 fractions in correct order | 0.6, 0.625, 0.63.. or 0.64, 0.66.. or 0.67 |
|  |  |  | A1 | cao | Accept list in reverse order for this mark.Accept expressed in equivalent decimals or percentages or any other appropriate form or mixed forms. |

| **Paper: 1MA1/3F** |
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| **Question** | **Answer** | **Mark** | **Mark scheme** | **Additional guidance**  |
| 11 | (a) | bar chart drawn | C2 | for four bars drawn at correct heights | Condone bars of unequal width Condone no gaps or inconsistent gaps |
|  |  |  | (C1 | for 2 or 3 bars with correct height) |  |
|  | (b)(i) | 51.5 | M1 | for method to find the mean, eg (58 + 48 + 52 + 48) ÷ 4 or $\frac{206}{4}$ oe | Accept missing brackets for award of this mark |
|  |  |  | A1 | for 51.5 or 51 $\frac{1}{2}$ |  |
|  |  (ii) | 10 | B1 | cao |  |
|  | (c) | Yes with reason | C1 | for “yes” and reason, eg the range for Manchester is greater than the range for Birmingham, ft (b)(ii)**or** for “no” and reason, eg there is not enough data | Do not accept a reason that refers to the mean |
| 12 | (a) | (1, H) (2, H) (3, H) (4, H) (1, T) (2, T) (3, T) (4, T) | M1 | M1 for at least 5 different combinations | Accept words in place of abbreviationsFor M1 ignore repeats, extras and incorrect results |
|  |  | A1 | for fully correct list with no extras or repeats |  |
|  | (b) | $$\frac{2}{8}$$ | M1 | (dep M1) ft for $\frac{2}{a}$ , *a* ˃ 2 or $\frac{b}{8}$ , *b* ˂ 8 |  |
|  |  |  | A1 | for $\frac{2}{8} $oe, ft (a),  |  |
| 13 |  | 12, 6 | M1  | for a first step to find the coordinates of *Q*, eg 5 – -2 (= 7) **or** for one coordinate correct |  |
|  |  |  | A1 | cao |  |

| **Paper: 1MA1/3F** |
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| **Question** | **Answer** | **Mark** | **Mark scheme** | **Additional guidance**  |
| 14 | (a) |  20 45 25 30 105 75 | C1 | starts to interpret information eg 45 or 30 in the correct place | May be seen as numerators or fractions for the first 2 marks |
|  |  | C1 | for 50 ‒ 30 (=20) and 150 ‒ 45 (=105) | Could be seen in working or on the diagram |
|  |  | C1 | Complete and correct frequency tree |  |
|  | (b) | $$\frac{4}{9}$$ | M1 | for $\frac{\left[number of pet owners who live alone\right]}{\left[total number of people who live alone\right]}$ ft diagram or for $\frac{20}{45}$ oe | Must be values from their diagram with value ˂ 1 |
|  |  |  | A1 | ft (a) |  |
| 15 | (a) | *w*(*w* + 4) | B1 | cao |  |
|  | (b) | 4.5 | M1 | for first step to solve the equation, eg 10*p* – 15 = 30 or 2*p* – 3 = 6 |  |
|  |  |  | M1 | for second step to isolate terms in *p*, eg 10*p* = 45 or 2*p* = 9 |  |
|  |  |  | A1 | for 4.5 or 4 $\frac{1}{2}$ or $\frac{9}{2}$ |  |
|  | (c) | Diagramcompleted | M1 | for drawing a line from −1 to 4 **or** (indep) for an open circle at 4 **or** (indep) for a closed circle at −1 |  |
|  |  |  | A1 | cao |  |

| **Paper: 1MA1/3F** |
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| **Question** | **Answer** | **Mark** | **Mark scheme** | **Additional guidance**  |
| 16 |  | Correct working | M1 | for start of method to find the number of tiles needed,eg 540 × 300 (= 162 000) or 60 × 30 (= 1800) or 540 ÷ 60 (= 9) or300 ÷ 60 (= 5) or540 ÷ 30 (= 18) or300 ÷ 30 (= 10) **OR**method to find the number of tiles she can buy, eg 400 ÷ 4.25 (= 94.1...) | May be seen on diagramCould work in m or cmAny first step which could lead to a successful outcome is acceptable |
|  |  |  | M1 | for second step to find the number of tiles needed,eg 540 × 300 (= 162 000) and 60 × 30 (=1800) or 540 ÷ 60 (= 9) **and** 300 ÷ 30 (= 10) or300 ÷ 60 (= 5) **and** 540 ÷ 30 (= 18) **OR**method to find the number of tiles she can buy and start of method to find the number of tiles needed, eg 400 ÷ 4.25 (= 94.1...) **and** 540 × 300 (= 162 000)  | Units must be consistent |
|  |  |  | M1 | for complete method to get figures to compare eg number of tiles they need and number she can afford ,“162 000” ÷ “1800” (= 90) **and** 400 ÷ 4.25 (= 94.1...)or “9” × “10” (= 90) **and** 400 ÷ 4.25 (= 94.1...)or “5” × “18” (= 90) **and** 400 ÷ 4.25 (= 94.1...**OR** cost to tile whole area, eg “162 000” ÷ “1800” (= 90) **and** “90” × 4.25 (= 382.5)or “9” × “10” (= 90) **and** “90” × 4.25 (= 382.5)or “5” × “18” (= 90) **and** “90” × 4.25 (= 382.5) | Accept any figure which rounds to 94 |
|  |  |  | C1 | for correct working leading to correct figures for comparison eg 90 and 94.1….. **or** 382.5  | A statement/conclusion is not necessary as long as the correct figures are shown for a comparison to be made. |

| **Paper: 1MA1/3F** |
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| **Question** | **Answer** | **Mark** | **Mark scheme** | **Additional guidance**  |
| 17 | (a) | 25 | B1 | cao |  |
|  | (b) | mistake explained | C1 | for correct statement,**Acceptable**he should have subtracted from 360180 should be 360he is working out the bearing of *Q* from *P*he has worked it out from *P***Not acceptable**the correct answer is 323the angle measures 143he has measured it wronghe has worked it out at the wrong anglehe should have subtracted from a whole circle |  |
| 18 |  | example | C1 | for identifying two prime numbers (with no non-prime numbers), eg 3, 5**or**for a complete example leading to an odd number with at least one prime number, eg 2 + 9 = 11 |  |
|  |  |  | C1 | for a complete example using two prime numbers, eg 2 + 5 = 7 |  |
| 19 |  | 1.61 | M1 | for 5.706(...) or 3.108(...) or 3.109 or 2.597(...) or 2.598 |  |
|  |  |  | A1 | for 1.61(....) |  |

| **Paper: 1MA1/3F** |
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| **Question** | **Answer** | **Mark** | **Mark scheme** | **Additional guidance**  |
| 20 | (i) | 22.5 | M1 | for a method to find scale factor, eg 5 ÷ 2 (= 2.5) or 2 ÷ 5 (= 0.4) oe | May see evidence on diagram or as part of calculation, 9 × 5 ÷ 2 or 9/2  |
|  |  |  | A1 | cao | Accept $22\frac{1}{2}$  |
|  | (ii) | 7.2 | M1 | for a method to find length of *BC*, eg 18 ÷ “2.5” or 18 × “0.4” or 9 × 18 ÷ “22.5” oe or $\frac{18}{5}$ | May see evidence on diagram |
|  |  |  | A1 | cao | Accept $7\frac{1}{5}$ oe |
| 21 |  | 37800 | M1 | for finding 3 products within intervals (including end points) |

|  |  |
| --- | --- |
| Min *fx* | Max *fx* |
| 5000 | 25 000 |
| 25 000 | 45 000 |
| 45 000 | 65 000 |

 |
|  |  |  | M1 | for Ʃ“*fx*”÷ (9 + 25 + 16)**or** (15 000 × 9 + 35 000 × 25 + 55 000 × 16) $÷$ (9 + 25 + 16)**or** (“135 000” + “875 000” + “880 000”) ÷ “50”**or** “1 890 000” ÷ “50” | Ʃ“*fx*” **must** come from 3 products *fx* within intervals (including end points) |
|  |  |  | A1 | cao |  |
| 22 |  | 942 | M1 | for complete method, eg *π* × 5² × 12 | May be seen in 2 stages |
|  |  |  | A1 | for value in the range 942 to 943 |  |

| **Paper: 1MA1/3F** |
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| **Question** | **Answer** | **Mark** | **Mark scheme** | **Additional guidance**  |
| 23 |  | 3.91 | P1 | for process to find 1.8% of 4000, eg 0.018 × 4000 (= 72) oe or 1.018 × 4000 (= 4072) oe | For process marks accept figures ±1 pence which do not need to be presented in money notation (to 2dp) or with monetary symbols. |
|  |  |  | P1 | for complete process to deal with compound interesteg 4000 × $1.018^{3}$ (= 4219.91...) oe | Award marks for correct processes shown, figures can be taken as implying the process. |
|  |  |  | P1 | for complete process to deal with simple interesteg 4000 × 0.018 × 3 (= 216)  |  |
|  |  |  | A1 | for 3.91 or 3.92 |  |
| 24 |  | 183.5, 184.5 | B1 | for 183.5 in the correct position |  |
|  |  |  | B1 | for 184.5 in the correct position | Accept 184.4$\dot{9}$ or 184.499… |
| 25 |  | 40.8 | P1 | for start of process to find the width, eg. tan 35 = $\frac{BC}{12}$ oe |  |
|  |  |  | P1 | for complete process to find width, eg 12 × tan 35 (= 8.40...) oe |  |
|  |  |  | P1 | for process to find perimeter, eg 2 × “8.40...” + 2 × 12 |  |
|  |  |  | A1 | for answer in the range 40.80 to 40.81 |  |

| **Paper: 1MA1/3F** |
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| **Question** | **Answer** | **Mark** | **Mark scheme** | **Additional guidance**  |
| 26 | (a) | – 25, (– 6), 1, 2, (3), 10, 29 | B2 | for all values correct |  |
|  |  |  | (B1 | for 3 or 4 missing values correct) |  |
|  | (b) | Curve drawn | M1 | (dep B1) for plotting their values  |  |
|  |  |  | A1 | for correct smooth curve drawn |  |
|  | (c) | 1.6 | B1 | for value in the range 1.5 to 1.7 ft (b)  |  |
| 27 |  | $$\frac{2}{3}$$ | P1 | for starting the process, eg by writing down a correct ratio or using a given number of counters for one relationship, eg 2B 1R, B:R = 2:1, 3G 1B, green = 6 , blue = 2, or B = 2*x*, R = *x* oe |  |
|  |  |  | P1  | for complete process to find possible total number of counters or equivalent ratio, eg 2B 1R 6G or B:R:G = 2:1:6 or blue 4 red 2 green 12 or B = 2*x*, R = *x*, G = 6*x* oe |  |
|  |  |  | A1 | for $\frac{2}{3} $oe | Accept 0.66... or 66…% truncated or rounded to at least 2 significant figures |

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