

Edexcel GCSE

Mathematics B 2544

Paper 5543F/ 10

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Mark Scheme (Results)

NOTES ON MARKING PRINCIPLES

1 **Types of mark**

M marks: method marks

A marks: accuracy marks

B marks: unconditional accuracy marks (independent of M marks)

2 **Abbreviations**

cao –correct answer only

ft –follow through

isw –ignore subsequent working

SC: special case

oe –or equivalent (and appropriate)

dep –dependent

indep - independent

3 **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.

4 **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. Send the response to review, and discuss each of these situations with your Team Leader.

Any case of suspected misread loses A (and B) marks on that part, but can gain the M marks. Discuss each of these situations with your Team Leader.

If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.

If there is a choice of methods shown, then no marks should be awarded, unless the answer on the answer line makes clear the method that has been used.

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

5 **Follow through marks**

Follow through marks which involve a single stage calculation can be awarded without working since you can check the answer yourself, 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.

6 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: eg. incorrect cancelling of a fraction that would otherwise be correct

It is not appropriate to ignore subsequent work when the additional work essentially makes the answer incorrect eg algebra.

Transcription errors occur when candidates present a correct answer in working, and write it incorrectly on the answer line; mark the correct answer.

7 Probability

Probability answers must be given as fractions, percentages or decimals. 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 answer is given on the answer line using both incorrect and correct notation, award the marks.

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

8 Linear equations

Full marks can be gained if the solution alone is given on the answer line, or otherwise unambiguously indicated 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.

9 Parts of questions

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

| 5543F - Section A | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|--|--|--|-----|---------|--|---|----|---|-----|----|----|----|----|---|---------------|---|---|--|
| No | | Working | | | | | Answer | Mark | Notes | | | | | | | | | | | | |
| 1 | (a) | Five thousand two hundred and sixty four | | | | | 5 300 | 1 | B1 accept 5 thousand 2 hundred and 60 four oe | | | | | | | | | | | | |
| | (b) | | | | | | | 1 | B1 cao | | | | | | | | | | | | |
| | (c) | | | | | | | 1 | B1 for 60 or sixty | | | | | | | | | | | | |
| 2 | (a) | | | | | | 4 or 16 | 1 | B1 for either 4 or 16 or both | | | | | | | | | | | | |
| | (b) | | | | | | | 1 | B1 cao | | | | | | | | | | | | |
| | (c) | | | | | | | 1 | B1 cao | | | | | | | | | | | | |
| | (d) | | | | | | | 1 | B1 cao | | | | | | | | | | | | |
| 3 | (a) | | | | | | (4, 3) | 1 | B1 cao | | | | | | | | | | | | |
| | (b) | | | | | | | 1 | B1 for Q plotted at (-3, 1) allow \pm 2mm on grid | | | | | | | | | | | | |
| | (c) | | | | | | | 2 | B2 for (1, 0) (B1 for (1, y) or (x, 0) or (0,1)) | | | | | | | | | | | | |
| 4 | (i) | | | | | | 110 | 2 | B1 cao | | | | | | | | | | | | |
| | (ii) | | | | | | | | B1 for 180° on a (straight) line | | | | | | | | | | | | |
| 5 | | | | | | | 2 | B2 for all three quadrilaterals correctly identified (B1 for two quadrilaterals correctly identified) | | | | | | | | | | | | | |
| 6 | <table><tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td></tr><tr><td>y</td><td>-7</td><td>-5</td><td>-3</td><td>-1</td><td>1</td></tr></table> | | | | | x | -2 | -1 | 0 | 1 | 2 | y | -7 | -5 | -3 | -1 | 1 | Straight line | 3 | M1 for one point correctly plotted or calculated or a straight line through one correct point | |
| | | | | | | x | -2 | -1 | 0 | 1 | 2 | | | | | | | | | | |
| | | | | | | y | -7 | -5 | -3 | -1 | 1 | | | | | | | | | | |
| M1 for 2 points correctly plotted or calculated | | | | | | | | | | | | | | | | | | | | | |
| A1 for correct line between -2 and 2 | | | | | | | | | | | | | | | | | | | | | |

| 5543F - Section A | | | | |
|-------------------|--|----------------|------|--|
| No | Working | Answer | Mark | Notes |
| 7 | $60 + 80$ or $180 - (180 - 60 + 80)$ | 140 | 2 | M1 for $60 + 80$ or $180 - (180 - 60 - 80)$ or 40 seen, or 140 seen in the working A1 cao |
| 8 | $60 \div 1\text{h } 30\text{ mins}$ or $60 \div 1.5$ or $60 \div 90 \times 60$ or $60 \div 90$ or $60 \div 1.3$ | 40 | 2 | M1 for attempt to divide 60 by “1h 30m” oe (accept 1.5 or 1.3(0) or 90 as “time”) A1 cao SC: Award B1 for an answer of 46 (.15) |
| 9 | $96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$ | 12 | 1 | B1 accept $2^2 \times 3$ oe |
| (b) | | $2^5 \times 3$ | 2 | M1 for attempting to split 96 into a product of at least 2 correct factors or listing at least 3 correct factors or a factor tree with at least 2 correct factors or 2^5 with 3 or 2, 2, 2, 2, 2, 3 A1 for $2^5 \times 3$ or $2 \times 2 \times 2 \times 2 \times 2 \times 3$ oe |

| 5543F - Section B | | | | |
|-------------------|---------|----------------|------|---|
| No | Working | Answer | Mark | Notes |
| 1 | (a) | 16 | 1 | B1 cao |
| | (b) | 12 | 1 | B1 cao |
| 2 | (a) | 110 | 1 | B1 for 4 rows by 5 columns of crosses |
| | (b) | | 1 | B1 for $4 \times 5 = 20$ accept 20 on its own |
| | (c) | | 1 | B1 cao |
| 3 | (a) | Plymouth | 1 | B1 for Plymouth accept 2°C |
| | (b) | Edinburgh | 1 | B1 for Edinburgh accept -7°C |
| 4 | (a) | 15 | 1 | B1 cao |
| | (b) | $\frac{7}{20}$ | 2 | B2 for $\frac{7}{20}$ (B1 for $\frac{35}{100}$ seen) |
| 5 | | $\frac{4}{5}$ | 2 | <p>M1 for shading either 16 squares or 15 squares or for $\frac{4}{5} = 80\%$ or 0.8 or $\frac{16}{20}$ or for $\frac{3}{5} = 75\%$ or 0.75 or $\frac{15}{20}$</p> <p>A1 for $\frac{4}{5}$ with reasons and correct working or shading for both fractions.</p> |

| 5543F - Section B | | | | |
|-------------------|---|-----------|------|---|
| No | Working | Answer | Mark | Notes |
| 6 | (a) | $4a$ | 1 | B1 accept $4 \times a$ |
| | (b) | $2pq$ | 1 | B1 accept $2qp$ |
| | (c) | $4a + 2b$ | 2 | B2 accept $4 \times a + 2 \times b$ (B1 for $4a$ or $2b$ seen, accept $4 \times a$ or $2 \times b$) |
| 7 | (a) | 2.2 | 1 | B1 for 2.2 or better (2.20462...) |
| | (b) $"2.2" \times 4$ | 8.8 | 1 | B1 ft from their (a) $\times 4$ or accept answers in range $8 \leq w < 9$ |
| 8 | $ \begin{array}{r} 256 \\ 50 \ 6 \\ \times \quad 16 \\ \hline 500 \ 60 \\ 15 \ 36 \\ 300 \ 36 \\ \hline 25 \ 60 \\ 40 \ 96 \end{array} $ <div> <div>200</div> <div>10</div> <div>2000</div> <div>6</div> <div>1200</div> </div> 2000, 1200, 500, 300, 60, 36 added | 40.96 | 3 | M1 for complete method for multiplying the digits 256 by 16, condone one <u>arithmetic</u> error A1 for digits 4096 seen A1 cao |
| 9 | $180 - 80 = 100$ angles in a triangle = 180° $100 \div 2 = 50$ isosceles triangle | | 2 | B1 for angle sum of a triangle is 180° (so other two angles are 100°) B1 for isosceles triangles have two equal angles (so each one is 50°) |
| 10 | | $3n + 1$ | 2 | B2 for $3n + 1$ oe (B1 for $3n \pm k$) SC: Award B1 for $n = 3n + 1$ |