

Mark Scheme (Results)

November 2011

GCSE Mathematics (5384F)
Paper 11F (Non-Calculator)

Edexcel is one of the leading examining and awarding bodies in the UK and throughout the world. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers.

Through a network of UK and overseas offices, Edexcel's centres receive the support they need to help them deliver their education and training programmes to learners.

For further information, please call our GCE line on 0844 576 0025, our GCSE team on 0844 576 0027, or visit our website at www.edexcel.com.

If you have any subject specific questions about the content of this Mark Scheme that require the help of a subject specialist, you may find our **Ask The Expert** email service helpful.

Ask The Expert can be accessed online at the following link:
<http://www.edexcel.com/Aboutus/contact-us/>

November 2011

Publications Code UG029742

All the material in this publication is copyright

© Pearson Education Ltd 2011

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If working is crossed out and still legible, then it should be given any appropriate marks, as long as it has not been replaced by alternative work.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

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

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 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.

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: e.g. incorrect canceling 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 e.g. 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.

10 Money notation

Accepted with and without the "p" at the end.

11 Range of answers

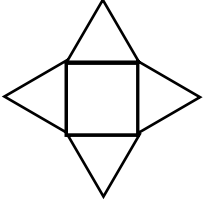
Unless otherwise stated, when any answer is given as a range (e.g 3.5 - 4.2) then this is inclusive of the end points (e.g 3.5, 4.2) and includes all numbers within the range (e.g 4, 4.1).

5384F_11F					
Question		Working	Answer	Mark	Notes
1	(a)	$960 - 23 + 16$	953	2	M1 for attempt to subtract 23 and add 16 or $960 - 23 + 16$ oe A1 cao
	(b)		25	1	B1 cao
2	(i)		- 5	2	B1 cao
	(ii)		15		B1 cao
3	(a)		18 16	1	B1 accept 18 16 or 6 16 pm
	(b)	$\begin{array}{r} 19\ 55 \\ \underline{18\ 59} - \\ 56 \end{array}$ $\begin{array}{r} 19\ 08 \\ \underline{18\ 18} - \\ 50 \end{array}$ or 18 59 to 19 00 is 1 minutes 19 00 to 19 55 is 55 minutes $1 + 55 = 56$ 18 18 to 18 30 is 12 minutes 18 30 to 19 00 is 30 minutes 19 00 to 19 08 is 8 minutes $12 + 30 + 8 = 50$ or $\begin{array}{r} 18\ 59 \\ - \underline{18\ 18} \\ 41 \end{array}$ $\begin{array}{r} 19\ 55 \\ - \underline{19\ 08} \\ 47 \end{array}$ $47 - 41 =$	6	2	M1 for (1955 – 1859) and (1908 – 1818) seen or 56 or 50 A1 cao or M1 for attempt to add on from 18 59 to 19 55 and 18 18 to 19 08 or 56 or 50 A1 cao or M1 for (18 59 – 18 18) and (19 55 – 19 08) or 41 or 47 A1 cao

5384F_11F					
Question		Working	Answer	Mark	Notes
4	(a)		A and E	1	B1 cao
	(b)		D and F	1	B1 cao
	(c)		B and C	1	B1 cao
5	(a)	$\begin{array}{r} 5 \\ 56 \end{array} 14$ $\begin{array}{r} 56 \\ 128 \\ \hline 436 \end{array}$	436	2	M1 for evidence of a correct method of decomposition or equal addition or use of complement to 200 or 6 seen in the units column of their answer A1 cao
	(b)	$\begin{array}{r} 56 \\ 128 \\ \hline 436 \end{array}$ $4 \times 7 = 28 \times 5 \text{ or}$ $4 \times 35 (7 \times 5) \text{ or}$ $4 \times 5 = 20 \times 7$	140	2	M1 '4 × 7' × 5 or 4 × '7 × 5' or '4 × 5' × 7 A1 cao
6	(a)		6	1	B1 cao
	(b)		40	1	B1 cao
7		$21 \times 3 = 63$ $63 + 7 = 70$	70	2	M1 for 21×3 or 63 seen or $(x - 7) \div 3$ or "21 × 3" + 7 seen but not 21 + 7 A1 cao
8			Two angles equal as $B = 50^\circ$	2	B2 for angle $B = 50$ and 'two angles equal' or angle A = angle B (B1 for use of 180, e.g. $180 - 50 - 80$ or $B = 50$) NB accept 50° if just seen on the diagram in the correct place

5384F_11F				
Question	Working	Answer	Mark	Notes
9	$3.45 + 1.8 = 5.25$ $10 - 5.25 = 4.75$ or $10 - 3.45 = 6.55$ “6.55” – 1.8 = or $10 - 1.8 = 7.2$ “7.2” – 3.45 =	4.75	3	M1 $3.45 + 1.8 (= 5.25)$ M1 $10 - '5.25'$ A1 cao or M1 for $10 - 3.45 (= 6.55)$ M1 for “6.55” – 1.8 A1 cao or M1 for $10 - 1.8 (= 7.2)$ M1 for “7.2” – 3.45 A1 cao SC: B2 for an answer of 5.47 or: B1 for 4.53 seen in working if M0 scored
10	(a)	h^4	1	B1 cao
	(b)(i)	$4 \times 5 + 2 \times \frac{1}{2}$	3	M1 for substituting 5 and $\frac{1}{2}$ correctly or sight of 4×5 and $2 \times \frac{1}{2}$ A1 cao
	(ii)	- 15		B1 cao

5384F_11F					
Question		Working	Answer	Mark	Notes
11	(a)			1	B1 for cross placed inside the correct square but not on the side of the square
	(b)			1	B1 for completing shape correctly by adding appropriate lines. See diagram at end
12	(a)		2 15 pm	1	B1 2 15 pm or 14 15 accept 2 15 or 2:15
	(b)		60	1	B1 cao
	(c)		5	1	B1 cao

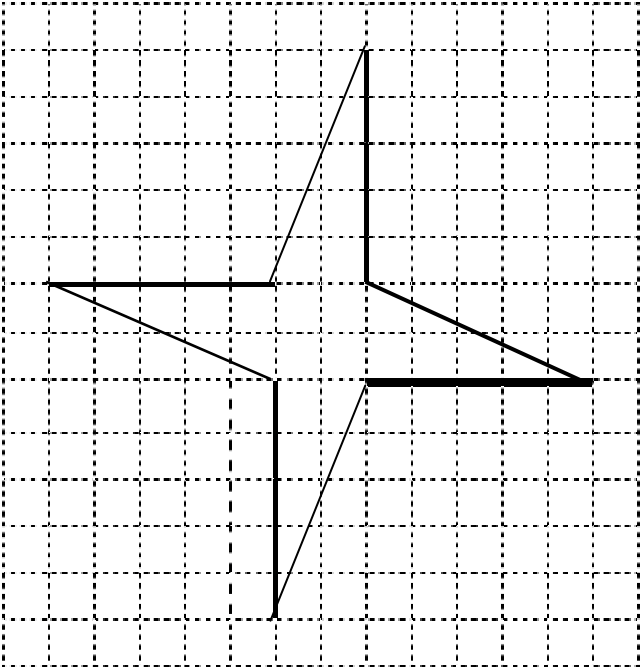
5384F_11F					
Question		Working	Answer	Mark	Notes
13	(a)		Correct net	1	B1 for any net that contains a reasonable attempt at a square and 4 triangles that could fold to make a square based pyramid. Condone freehand sketches as long as the meaning is clear
	(b)		Correct drawing	2	<p>M1 constructing intersecting arcs of equal radius use overlay</p> <p>A1 correct triangle with appropriate arcs</p> <p>(SC: B1 correct triangle drawn within guidelines of overlay if M0 scored)</p> <p>(NB: guidelines allow for 2mm tolerance)</p>

5384F_11F					
Question		Working	Answer	Mark	Notes
14	(a)	$\frac{4}{20}$	$\frac{1}{5}$	2	M1 $\frac{4}{20}$ oe A1 cao
	(b)	$\frac{6}{20} \times 100$ or $\frac{6}{20} = \frac{5 \times 6}{5 \times 20}$	30	2	SC B1 for $\frac{16}{20}$ oe M1 $\frac{6}{20} \times 100$ oe A1 cao or M1 $\frac{6}{20} = \frac{5 \times 6}{5 \times 20}$ A1 cao
	(c)	$10 - 1.50 = 8.50$ $8.50 \div 2 = 4.25$	5.75	2	M1 $10 - 1.5(0) = 8.5(0)$ and “8.5(0)” $\div 2$ or $(10 + 1.5(0) = 11.5(0)) \div 2$ or $2x \pm 1.5(0) = 10$ oe or 4.25 seen A1 cao
15	(a)	Gemma $x + 4$ Jo $x - 2$ $x + 4 + x - 2 + x = 23$	$3x + 2 = 23$	2	M1 for $x + 4$ and $x - 2$ seen (ignore £ signs) A1 $x + 4 + x - 2 + x = 23$ oe accept $x = 7$ even if seen only in (b)
	(b)	$3x + 2 = 23$ $3x = 21$	7	2	M1 for isolating terms in x and number terms on each side of an equation, '3x = 21' ft from $ax + b = 23$ in (a) where $a \neq 0$ or 1 A1 ft from their answer to (a)
16		$4.8 \div 24$	20	2	M1 for $4.8 \div 24$ or $480 \div 24$ or sight of digits 20 A1 cao

5384F_11F													
Question	Working	Answer	Mark	Notes									
17	$\frac{2}{3} + \frac{1}{7} = \frac{14}{21} + \frac{3}{21}$ <table border="1" data-bbox="398 421 568 563"> <tr> <td></td> <td>2</td> <td>3</td> </tr> <tr> <td>1</td> <td></td> <td>3</td> </tr> <tr> <td>7</td> <td>14</td> <td>21</td> </tr> </table>		2	3	1		3	7	14	21	$\frac{17}{21}$	2	<p>M1 for a suitable common denominator (multiple of 21), and at least one of two fractions correct NB sight of $\frac{3}{21}$ oe or — oe alone is not sufficient</p> <p>A1 $\frac{17}{21}$ oe</p> <p>OR</p> <p>Attempt to use decimals, must use at least 2 dp</p> <p>M1 0.66 + 0.14</p> <p>A1 0.809523</p> <p>or</p> <p>M1 for table structure correct with all cells correct</p> <p>A1 for $\frac{17}{21}$</p>
	2	3											
1		3											
7	14	21											
18	$3y + 12 = y + 8$ $3y - y = 8 - 12$	-2	2	<p>M1 for an intention to attempt to take variables to one side or numbers to the other or $3y - y = 8 - 12$ or $2y = -4$ seen</p> <p>A1 cao</p>									

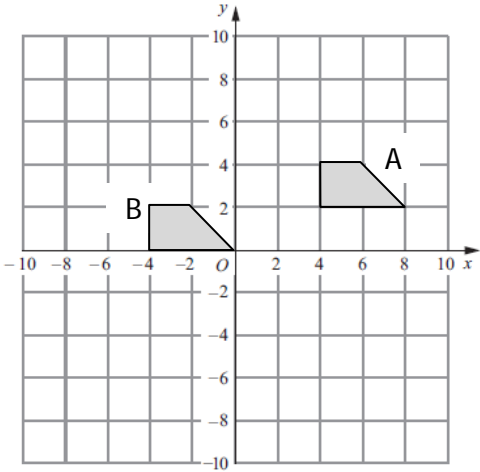
5384F_11F					
Question	Working	Answer	Mark	Notes	
19	$\text{Ext angle} = \frac{360}{6}$ $\text{Int angle} = 180 - 60$ $120 + 90 = 210$ $360 - 210 = 150$ <p>or</p> $180 \times 4 = 720$ $720 \div 6 = 120$ $120 + 90 = 210$ $360 - 210 = 150$ <p>or</p> $\text{Ext angle hexagon} = \frac{360}{6}$ $\text{Ext angle square} = \frac{360}{4} \text{ or}$ $180 - 90$ $90 + 60$	150	4	<p>M1 for (Ext angle) = $\frac{360}{6}$ (= 60) seen</p> <p>M1 for (Int angle) = 180 - '60'</p> <p>M1 (dep on at least M1) 360 - ('120' + '90')</p> <p>A1 cao</p> <p>SC B2 for answer of 210 given</p> <p>Or</p> <p>M1 for 180 × 4 (= 720)</p> <p>M1 for '720' ÷ 6 (=120)</p> <p>M1 (dep on at least M1) 360 - ('120' + 90)</p> <p>A1 cao</p> <p>Or</p> <p>M1 (Ext angle hexagon) = $\frac{360}{6}$</p> <p>M1 (Ext angle square) = $\frac{360}{4}$ or (180 - 90) or 90° seen as exterior angle on diagram</p> <p>M1 (dep on at least M1) '90' + "60"</p> <p>A1 cao</p>	
20	(a)	Vertices at (-4, 2), (-4, 0), (0, 0) and (-2, 2)	Correct translation	2	M1 any translation A1 cao
	(b)	Vertices at (4, 4), (2, 4) and (2, 8)	Correct reflection	2	M1 sight of line y = x drawn or a correct reflection in y = -x A1 cao

Diagram for Question 11(b)

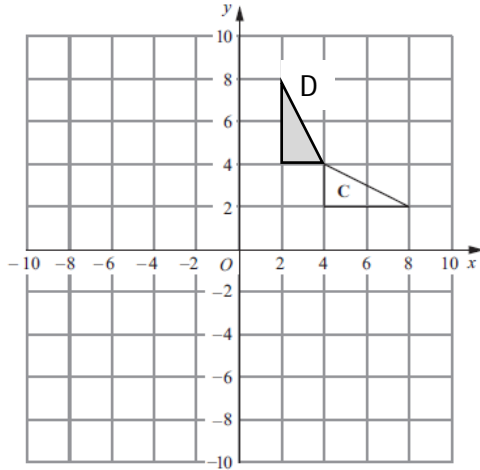


Diagrams for Question 20

(a)



(b)



Further copies of this publication are available from
Edexcel Publications, Adamsway, Mansfield, Notts, NG18 4FN

Telephone 01623 467467

Fax 01623 450481

Email publication.orders@edexcel.com

Order Code UG029742 November 2011

For more information on Edexcel qualifications, please visit
www.edexcel.com/quals

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE

Ofqual



Llywodraeth Cynulliad Cymru
Welsh Assembly Government

