edexcel
advancing learning, changing lives

Mark Scheme
Mock Paper

GCSE

GCSE in Mathematics Specification A
Higher Tier

Paper 2 (Calculator)

Edexcel Limited. Registered in England and Wales No. 4496750
Registered Office: One90 High Holborn, London WC1V 7BH

A PEARSON COMPANY

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.
- 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.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.
- Mark schemes will indicate within the table where, and which strands of QWC, are being assessed. The strands are as follows:

  i) ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear.
  Comprehension and meaning is clear by using correct notation and labelling conventions.

  ii) select and use a form and style of writing appropriate to purpose and to complex subject matter.
  Reasoning, explanation or argument is correct and appropriately structured to convey mathematical reasoning.

  iii) organise information clearly and coherently, using specialist vocabulary when appropriate.
  The mathematical methods and processes used are coherently and clearly organised and the appropriate mathematical vocabulary used.

Guidance on the use of codes within this mark scheme
M1 – method mark
A1 – accuracy mark
B1 – working mark
C1 – communication mark
QWC – quality of written communication
oe – or equivalent
cao – correct answer only
ft – follow through
sc - special case

Specification A Paper 2 Higher Tier

1MA0/2H					
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
1. **FE**		7 ÷ 5 (=1.4) 2 × "1.4" (=2.8) 5.65 – 2.8 (=2.85) "2.85"÷3	£0.95	3	M1 for 7 ÷ 5 (=1.4) M1 for 5.65 – 2 × "1.4" (=2.85) A1 cao
					Total for Question 1: 3 marks
2.	(a)		150774.1935…	2	M1 for 74.89.. or 0.0372 A1 for 159774.1….
	(b)		151000	1	B1 ft
					Total for Question 2: 3 marks
3.	(a)		Negative	1	B1 cao
	(b)		Line of best fit drawn	1	B1 St line between (15,50),(15,45) and (50,14),(50,9)
	(c)		35 – 40	1	B1 ft
					Total for Question 3: 3 marks
4.	(a)		20	1	B1 cao
	(b)		Line from (10 10,10) to (10 40, 10) to (11 20, 0)	3	B1 for line from (10 10,10) to (10 40, 10) M1 for 10 ÷ 15 or 40 minutes A1 for line from (10 40, 10) to (11 20, 0)
					Total for Question 4: 4 marks
5.			25	3	M1 for angle *BAH* = 28 or angle *ABH* = 180 – 53 (=127) M1 for 180 – "127" – 28 A1 cao
					Total for Question 5: 3 marks

1MA0/2H					
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
6.	(a)		5	2	M1 for $5x - 2x = 17 - 2$ A1 cao
	(b)		$x > \frac{7}{6}$	2	M1 for $6x + 3 > 10$ A1 cao
					Total for Question 6: 4 marks
7.			Stem and leaf diagram (see end of mark scheme) + key	3	B3 for fully correct diagram with correct key [B2 or ordered leaves (condone one error), key or no key OR unordered leaves (condone one error) + correct key] [B1 for unordered leaves (condone one omission), no key OR for a correct key (ignore diagram) OR for ordered leaves (no more than 2 errors with a correct key]
					Total for Question 7: 3 marks
8. **FE**		2 × 3.50 + 2.50 + 2.20 = £11.70 10 ÷ 1.25 = 8 11.70 – 8	3.70	4	M1 for 2 × 3.50 + 2.50 + 2.20 (= £11.70) M1 for 10 ÷ 1.25 (= 8) M1 for "11.70" – "8" A1 cao **or** M1 for 2 × 3.50 + 2.50 + 2.20 (= £11.70) M1 for "11.70" × 1.25 = (14.625) M1 for "14.625" – 10 A1 cao
					Total for Question 8: 4 marks
9.	(a)		$6y(y + 2)$	2	M1 for any factor correct A1 cao
	(b)		$(k + 10)(k + 3)$	2	M1 for $(k \pm 10)(k \pm 3)$ **or** $(k + a)(k + b)$ where $ab = 30$ A1 cao
					Total for Question 9: 4 marks

1MA0/2H					
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
10.	(a)		Proof	2	M1 for $x \times x \times (x + 4)$ **or** equating an expression in x to 150 A1 for completion of proof
	(b)	4.2 144(.648…) 4.3 153(.467…) 4.4 162(.624…) 4.5 172(.125…) 4.25 149.0(15…)	4.3	4	B2 for trial $4.2 \le x \le 4.3$ evaluated (B1 for trial $4 \le x \le 5$ evaluated) B1 for different trial $4.25 \le x < 4.3$ evaluated B1 (dep on at least 1 previous B1) for 4.3 Values evaluated can be rounded or truncated, but to at least 3sf when x has 1 dp and 4 sf when x has 2 dp NB allow 149 for evaluation using $x = 4.25$
					Total for Question 10: 6 marks
11.	(a)		$3 \le h < 4$	1	B1 cao
	(b)	(1.5 + 12 + 17.5 + 35 +54) ÷ 40 = 120 ÷ 40	3	4	M1 for use of fx with x consistent within intervals (including end points) M1 (dep) for use of midpoints M1 (dep on 1st M1) for use of $\frac{\sum fx}{\sum f}$ A1 cao
					Total for Question 11: 5 marks
12.	(a)		Triangle at (1,2) (1, -1) (3, -1)	1	B1 cao
	(b)		Rotation; 180^0; centre (0,0)	3	B1 for rotation B1 for 180^o B1 for centre (0,0)
					Total for Question 12: 4 marks

1MA0/2H					
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
13. **QWC**		$\Pi \times 6^2 \times 15$ (= 1696..) 15 × 1000 = 15000 15000 ÷ 1696 (=8.8…)	8	4	M1 for $\Pi \times 6^2 \times 15$ (= 1696..) B1 for 15000 M1 for "15000" ÷ "1696" C1 for reasoning how many bags for answer of 8 from 8.8… **QWC : Working must be clearly set out with conclusion referring back to working**
					Total for Question 13: 4 marks
14. **FE**		$6^2 = x^2 + 1.5^2$ √33.75 (=5.809…)	5.8	3	M1 for $6^2 = x^2 + 1.5^2$ M1 for $\sqrt{36 - 2.25}$ A1 cao
					Total for Question 14: 3 marks
15. **FE**		52 ÷ 0.8	65	3	M1 for 0.8 or 80% seen M1 for 52 ÷ 0.8 oe A1 cao
					Total for Question 15: 3 marks
16.			6.32	3	M1 for tan 36 = $\frac{BC}{8.7}$ M1 for 8.7 × tan36 A1 for 6.32 – 6.325
					Total for Question 16: 3 marks
17.	(a)	See table at end	Table	2	B2 all 4 correct (B1 any two correct)
	(b)	Graph drawn (at end)		2	B1 at least 8 points plotted correctly (ft) B1 smooth curve drawn through their 8 or 9 points
	(c)	Graph drawn (at end)	-1.5, -0.3, 1.9	1	B1 ft from graph
					Total for Question 17: 5 marks

1MA0/2H					
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
18.	(a)		$\frac{1}{10}, \frac{3}{5}, \frac{2}{5}, \frac{3}{5}$	2	B1 for $\frac{1}{10}$ B1 for $\frac{3}{5}, \frac{2}{5}, \frac{3}{5}$
	(b)		$\frac{9}{25}$	2	M1 for $\frac{9}{10} \times \frac{2}{5}$ A1 for $\frac{9}{25}$ oe
					Total for Question 18: 4 marks
19.			Region shaded	4	B1 $y = -4$ B1 $x = 2$ B1 $y = 2x+1$ B1 region bounded by (2, 5), (2, -4), (2.5, -4) indicated
					Total for Question 19: 4 marks
20.	(a)		3.7×10^{-4}	1	B1 cao
	(b)		8250	1	B1 cao
	(c)		1.26×10^{4}	2	M1 for 1260 or 1.26×10^{n} or 126×10^{3} A1 cao
					Total for Question 20: 4 marks

1MA0/2H					
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
21.	(a)		18.5	1	B1 cao
	(b)		564.25	2	M1 for "18.5" × UB (where 30 < UB ≤ 30.5) A1 cao
					Total for Question 21: 3 marks
22.			1490	3	M1 for $\frac{1}{2}\times\frac{4}{3}\times\pi\times7^3$ (= 718.37...) or $\frac{1}{3}\times\pi\times7^2\times15$ M1 for $\frac{1}{2}\times\frac{4}{3}\times\pi\times7^3 + \frac{1}{3}\times\pi\times7^2\times15$ A1 1485 - 1490
					Total for Question 22: 3 marks
23.			Bars of height 16, 14, 11, 4.5	3	M1 for use of frequency density M1 for at least two bars of different widths drawn correctly or all correct heights seen A1 cao
					Total for Question 23: 3 marks

1MA0/2H					
Question		**Working**	**Answer**	**Mark**	**Additional Guidance**
24. **QWC FE**		$\frac{\sin ADB}{68} = \frac{\sin 85}{240}$ $ADB = \sin^{-1}(\frac{\sin 85}{240} \times 68)$ ½ × 240 × 68 × sin(180 – 85 – "16.39..") **+** ½ × 240 × 95 × sin(136 – 16.39..)	17900	6	M1 for $\frac{\sin ADB}{68} = \frac{\sin 85}{240}$ M1 for $ADB = \sin^{-1}(\frac{\sin 85}{240} \times 68)$ A1 for 16.39... M1 for ½ × 240 × 68 × sin(180 – 85 – "16.39..") (7999.29...) **or** ½ × 240 × 95 × sin(136 – 16.39..) (= 9911.26...) M1 for ½ × 240 × 68 × sin(180 – 85 – "16.39..") **+** ½ × 240 × 95 × sin(136 – 16.39..) C1 17850-17950 **QWC : Working must be clearly set out with conclusion referring back to working**
					Total for Question 24: 6 marks
25.	(a)		(3, 4)	1	B1 cao
	(b)		(5, 1)	1	B1 cao
	(c)		(6, 1)	1	B1 cao
					Total for Question 25: 3 marks
26. **QWC**			12	6	M1 for one correct expression for area M1 for $2x(2x + 5) + (2x - 3)(x + 1) = 102$ A1 for $2x^2 + 3x - 35 = 0$ or $6x^2 + 9x - 105 = 0$ M1 for $(2x \pm 7)(x \pm 5)$ oe or substitution into quadratic formula C1 for 3.5 oe C1 ft for 12 **QWC : Working must be clearly set out with conclusion referring back to working**
					Total for Question 26: 6 marks

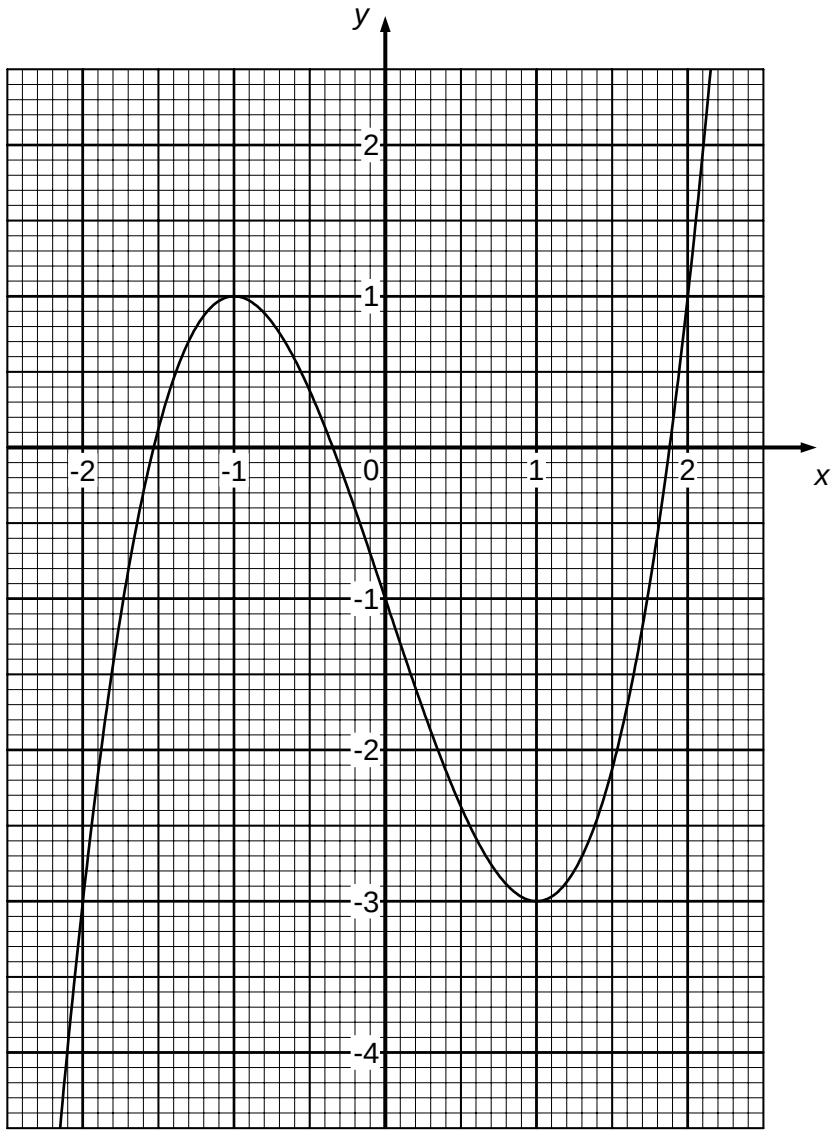
Q 7

2	2 5 7
3	0 1 3
4	2 4 7 8
5	0 1 4 6
6	2 3 3 3 7 9

Plus appropriate key

Q 17

x	-2	-1.5	-1	-0.5	0	0.5	1	1.5	2
y	-3	0.125	**1**	0.375	**-1**	-2.375	-3	**-2.125**	**1**



April 2010

For more information on Edexcel and BTEC qualifications
please visit our website: www.edexcel.org.uk

Edexcel Limited. Registered in England and Wales No. 4496750
Registered Office: One90 High Holborn, London WC1V 7BH. VAT Reg No 780 0898 07