



**SET Y**

**Level 3 Certificate**  
**MATHEMATICAL STUDIES**

**Paper 2C**

**Mark scheme**

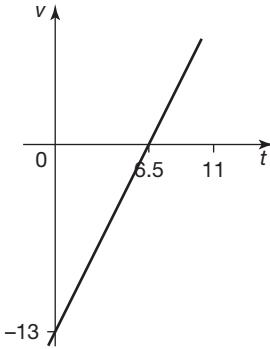
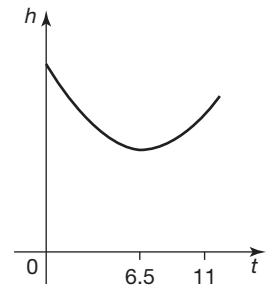
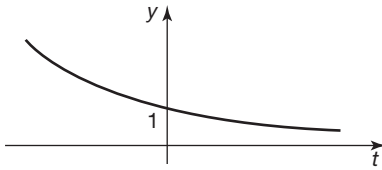
# Glossary

The marking scheme is given to indicate roughly where marks are likely to be awarded. The scheme does not necessarily reflect the precise allocation of marks that would be used by AQA Examining teams.

<b>M</b>	Method marks: awarded for evidence of a correct method which could lead to a correct answer.
<b>A</b>	Accuracy marks: awarded for a correct answer that follows from a correct method. To get these marks a correct method must be explicitly or implicitly shown; a correct answer alone gets no marks.
<b>B</b>	Marks that are awarded independently of any method.
<b>ft</b>	Follow through: marks awarded for an answer that uses correct working following a mistake in an earlier step.

# Mark scheme Paper 2C

Question	Answer	Mark																
1 (a)	The graph shows a cumulative total, which is certain to rise.	B1																
	The headline confuses this with the rate of bankruptcies, which is actually falling.	B1																
1 (b)	We have successfully reduced the bankruptcy rate to 21 000 per year.	M1 A1																
2	She is correct that her gross salary is roughly £400 per week.	B1																
	However, this will be used up as follows (for example).	M1 A1 A1																
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: right;">£</th> </tr> </thead> <tbody> <tr> <td>Income tax</td> <td style="text-align: right;">40</td> </tr> <tr> <td>NI</td> <td style="text-align: right;">30</td> </tr> <tr> <td>Student loan repayment</td> <td style="text-align: right;">0</td> </tr> <tr> <td>Rail fare</td> <td style="text-align: right;">80</td> </tr> <tr> <td>Board and lodging</td> <td style="text-align: right;">120</td> </tr> <tr> <td>Saving</td> <td style="text-align: right;">100</td> </tr> <tr> <td><b>Total</b></td> <td style="text-align: right;"><b>370</b></td> </tr> </tbody> </table>			£	Income tax	40	NI	30	Student loan repayment	0	Rail fare	80	Board and lodging	120	Saving	100	<b>Total</b>	<b>370</b>
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With these figures, she is left only £30 per week for other expenses/entertainment.	A1																	
3 (a)	For example, “cheats taxpayer”, “sparked fury”, “flogged on the cheap”.	B1																
3 (b)	$45.8 - 32.4 - 6.2 = 7.2$ (£ billion)	M1 A1																
3 (c)	It will be the best deal for taxpayers.	B1 × 2																
	It will support the British economy.																	
	It is the judgement of the Bank of England.																	
	It is the conclusion of Rothschilds.																	
3 (d)	The Daily Mirror can justifiably claim that the first tranche of stock had been sold too cheaply.	M1 A1																
	However, George Osborne would be able to say that it was only the fact that the sale had taken place which had “improved the marketability” of the stock, as he had predicted. He would then be able to get better terms for the taxpayer in the future.	M1 A1																
3 (e)	$\left(\frac{32.4}{0.81}\right) = 40$ (£ billion)	M1 A1																
4 (a)	No punnets will be supplied if the price is only 50p per punnet.	B2																
4 (b)	Accurate tangent drawn	B1																
	Approximately 4.5	M1 A1																
4 (c)	Supply increases by $\frac{4.5 \times 1000}{100} = 45$ punnets	M1 A1																
4 (d)	Correct line drawn on graph	B1																
	Approximately £1.15	M1 A1																

5 (a)		M1 A1
5 (b)	<p>The paraglider is losing height for the first 6.5 seconds, reaches a lowest point and then ascends again.</p> 	B1 B1
	Negative gradient at 0 and positive at 11.	B1
	Minimum at 6.5	B1
	Fully correct	B1
5 (c)	It is constant at $2 \text{ ms}^{-2}$	B1 B1
6 (a)	£1979.93	M1 A1
	Very close agreement	B1
6 (b) (i)	$\frac{70}{25} \approx 3$ days	M1 A1
6 (b) (ii)	$1.25^n = 2 \Rightarrow n = \frac{\ln 2}{\ln 1.25} \approx 3.1$	M1 A1
	The estimate of part (i) is a good one	B1
7 (a)		B2
	Point (0, 1) marked	B1
	At time 0, the entire amount remains.	B1
7 (b)	$e^{-0.000121 \times 5728} \approx 50\%$	M1 A1
7 (c)	$e^{-0.000121t} = 0.7$	B1
	$t = 2950$	M1 A1
	Approximately 935 BC	A1
7 (d)	An equation can be set up and solved but the easiest method is to use (b):	M1 A1
	$k = \frac{1}{5728}$	M1 A1
	$k \approx 0.000175$	A1