

This is a calculator test (50 minutes).

The following marks are awarded for each question.

B	Unconditional accuracy mark.
M	Method mark – the correct method must be shown but there may be an arithmetic error; the sight of the value given in brackets implies the award of the method mark.
A	Accuracy mark – unless the question specifies that working must be shown then the sight of the correct answer implies the award of full marks (unless the answer clearly comes from incorrect working).
C	Communication mark.
P	Process mark to show correct process for problem solving. Any other process of a similar standard to achieve an accurate result is acceptable to achieve this mark.
FT	Incorrect values may be followed through from one step to the next provided that the correct method is seen in each step and the only errors are arithmetic. This is shown in mark schemes by putting a number in inverted commas.
OE	Or equivalent answer mark.

Q	Answer	Mark	Comment
1a	$-10x^2$	B1	
1b	$4x$	B1	
1c	$11t$	B1	
3a	No, it should be e^2 OE	B1	
3b	No, it should be $35t$ OE	B1	

5	Naomi forgot to also multiply and get $3x + 3x$ so ending up with $x^2 + 6x + 9$	B2	B1 for a partially correct answer, e.g. she should have done $(x + 3)(x + 3)$
7a	7, 2, -1, -2, -1, 2, 7	B2	B1 for two correct; B2 for all correct
7b	All points plotted correctly and joined with a smooth curve.	M1	M1 for all points plotted correctly
		A1	allow SC B1 for 5 or 6 points plotted correctly and 7 points joined with a smooth curve
7c	-0.4, 2.4	B2	FT from their graph

			accept ± 0.2
9a	$x = 4$	P1	$x(x + 5) = (x + 2)(x + 2)$
		P1	$x^2 + 5x = x^2 + 2x + 2x + 4$
		A1	
9b	6 (cm)	B1	
11	C, B, A	B2	B1 for 1 correct; B2 for all correct

13a	$-2, -6$	M1	M1 $(x \pm 2)(x \pm 6)$
		A1	Both answers
13b	± 5	M1	M1 $(x \pm 5)(x \pm 5)$ or $x^2 = 25$
		A1	Both answers
13c	$0, -3$	M1	$x(7x + 21)$ or $7x(x + 3)$
		A1	Both answers

Question	Topic	Step	Marks
1a	Know that expressions involving repeated multiplication can be written as n, n^2, n^3	6th	1
1b	Simplify simple linear algebraic expressions by collecting like terms (e.g. $a + a + a, 3b + 2b$)	3rd	1
1c	Simplify simple linear algebraic expressions by collecting like terms (e.g. $a + a + a, 3b + 2b$)	3rd	1
3a	Simplify algebraic expressions by collecting like terms	4th	1
3b	Simplify algebraic expressions by collecting like terms	4th	1
5	Multiply out brackets involving positive terms such as $(a + b)(c + d)$ and collect like terms	7th	2
7a	Generate points and plot graphs of simple quadratic functions, then more general functions	7th	2
7b	Generate points and plot graphs of simple quadratic functions, then more general functions	7th	2
7c	Find approximate solutions of a quadratic equation from the graph of the corresponding quadratic function	9th	2
9a	Solve simultaneous equations representing a real-life situation graphically and interpret the solution in the context of the question	9th	3
9b	Solve simultaneous equations representing a real-life situation graphically and interpret the solution in the context of the question	9th	1
11	Recognise a graph which represents a quadratic function	7th	2
12	Rearrange and solve equations involving squares and fractions	8th	3
13a	Solve simple quadratic equations algebraically by factorising	8th	2
13b	Solve simple quadratic equations algebraically by factorising	8th	2
13c	Solve simple quadratic equations algebraically by factorising	8th	2

