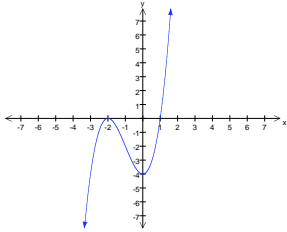
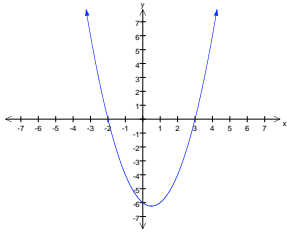
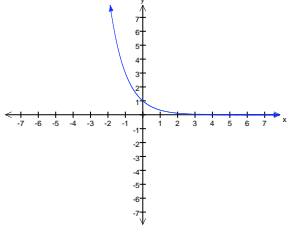
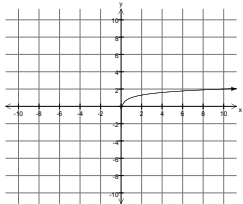
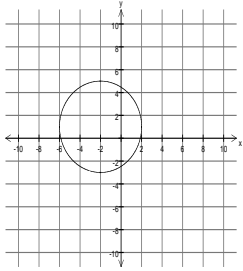
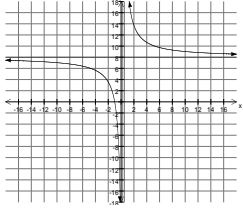


Assessment Schedule – 2007

Mathematics: Draw straightforward non-linear graphs (90285)

Evidence Statement

	Assessment Criteria	No.	Evidence	Code	Judgement	Sufficiency
Achievement	Draw straightforward non-linear graphs.	1(a)		A	Correct shape and smoothly drawn through $(-2,0)$ $(0,-4)$ $(1,0)$.	ACHIEVEMENT: THREE A
		1(b)		A	Correct shape and smoothly drawn through $(-2,0)$ $(0,-6)$ $(3,0)$ and goes below $y = -6$.	
		1(c)		A	Correct shape and smoothly drawn through $(0,1)$ and approaches the x-axis.	

Merit	Draw non-linear graphs AND Use non-linear graphs to solve problems	1(d)		A M1	Correct shape and smoothly drawn through (1,1) and approaches an asymptote at $x = 0$. The graph must not touch the y -axis.	ACHIEVEMENT WITH MERIT: Achievement plus FOUR M(M1 or M2) OR THREE M1 plus TWO M2
		1(e)		A M1	Correct shape and smoothly drawn through (2,1), (-6,1), (-2,5), (-2,-3).	
		2(a)	$xy = 8$	M2	Or equivalent.	
		2(b)	$y = -(x + 1)(x - 2)^2$	M2	Or equivalent.	
		3(a)		A M1	Correct shape and smoothly drawn through at least two correct points. At least one asymptote indicated at $x = 0.25$ or $y = 8$.	
		3(b)	The cost of producing each cheesecake decreases as n increases and cheesecake price gets closer to \$8.	M2	The \$8 must be mentioned appropriately in the explanation.	

Excellence	Determine and apply an appropriate model for a situation involving graphs	4	<p>Put axes at bottom of parabola.</p> <p>Parabolas are: $y_1 = -ax^2 + 12$ $y_2 = -bx^2 - 16$</p> <p>Find a $0 = -a(\sqrt{2})^2 + 12$ $a = 6$</p> <p>Find b $12 = b(x - 4)(x + 4)$ $12 = b \times 4 \times 12$ $b = 0.25$</p> <p>so $y_1 = -6x^2 + 12$ and $y_2 = 0.25x^2 - 4$</p> <p>To find the horizontal distance for parabola y_1 $9 = -6x^2 + 12$ $x^2 = 0.5$ $x = \sqrt{0.5}$</p> <p>for parabola y_2 $9 = 0.25x^2 - 4$ $36 = x^2 - 16$ $52 = x^2$ $x = \sqrt{52}$</p> <p>Thickness of cake = $\sqrt{52} - \sqrt{0.5} = 6.5\text{cm}(2\text{sf})$</p>	<p>M2 M2</p> <p>E</p>	<p>Must have supporting working and a logical argument.</p> <p>Alternative methods acceptable.</p> <p>Accept a minor error in working.</p>	<p>ACHIEVEMENT WITH EXCELLENCE:</p> <p>Merit plus E</p>
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Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
Draw straightforward non-linear graphs. $3 \times A$	Draw non-linear graphs. <i>Use non-linear graphs to solve problems.</i> Achievement plus $4 \times M$ (M1 or M2) <i>or</i> 3 of M1 plus two of M2	<i>Determine and apply an appropriate model for a situation involving graphs.</i> Merit plus $1 \times E$

The following Mathematics-specific marking conventions may also have been used when marking this paper:

- Errors are circled.
- Omissions are indicated by a caret (^).
- **NS** may have been used when there was not sufficient evidence to award a grade.
- **CON** may have been used to indicate ‘consistency’ where an answer is obtained using a prior, but incorrect answer and **NC** if the answer is not consistent with wrong working.
- **CAO** is used when the ‘correct answer only’ is given and the assessment schedule indicates that more evidence was required.
- **#** may have been used when a correct answer is obtained but then further (unnecessary) working results in an incorrect final answer being offered.
- **RAWW** indicates right answer, wrong working.
- **R** for ‘rounding error’ and **PR** for ‘premature rounding’ resulting in a significant round-off error in the answer (if the question required evidence for rounding).
- **U** for incorrect or omitted units (if the question required evidence for units).
- **MEI** may have been used to indicate where a minor error has been made and ignored.