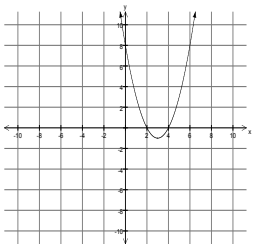
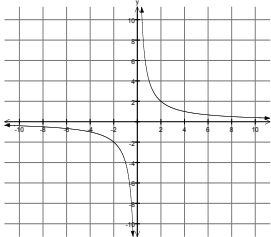
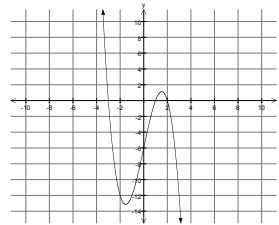
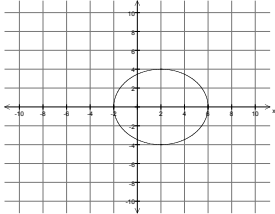
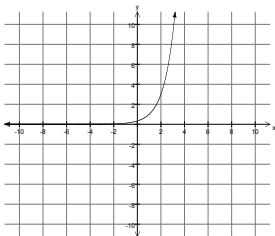
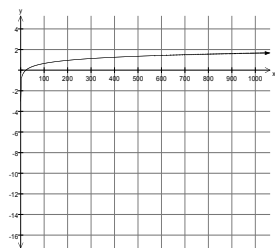


Assessment Schedule – 2008**Mathematics: Draw straightforward non-linear graphs (90285)****Evidence Statement**

	Assessment Criteria	No.	Evidence	Code	Judgment	Sufficiency
ACHIEVEMENT	Draw straightforward non-linear graphs.	1(a)		A	Correct shape and smoothly drawn through (2,0), (4,0), (0,8).	ACHIEVEMENT: Three of Code A.
		1(b)		A	Correct shape and smoothly drawn through (2,2) and (-2,-2) or other correct points clear. Both branches drawn.	
		1(c)		A	Correct shape and smoothly drawn through (-3,0), (0,-6), (1,0) and (2,0).	

MERIT	Draw non-linear graphs AND Use non-linear graphs to solve problems.	1(d)		A M1	Correct shape and smoothly drawn through $(-2, 0)$, $(6, 0)$, $(2, -4)$, $(2, 4)$.	ACHIEVEMENT WITH MERIT: Achievement plus Four of code M1 or M2 (at least one of M1) OR Three of code M1 plus 2 of code M2.
		1(e)		A M1	Correct shape and 2 out of 3 of smoothly drawn through $(1, 1)$ and $(2, 3)$ and $(0, \frac{1}{3})$ and approaches an asymptote at $y = 0$.	
		2	$y = x(x + 3)^2$	M2	Or equivalent.	
		3(a)	$P(t) = -(t - 10)(t - 40)$	M2	Or equivalent.	
		3(b)	$P(t)$ -ve for $t < 10$ ie company is losing money. $P(t) = 0$ at $t = 10$ and $t = 40$ ie company is break-even. Maximum profit when $t = 25$.	M2 E	1 correct statement. 3(b) Full description well explained and 3(a) M2.	
		4(a)		A M1	Correct shape and smoothly drawn through $(22, 0)$. The graph must not cut the y axis and must be below $(1000, 2)$.	
		4(b)	No; as there is no horizontal asymptote the Richter value will continue to increase as the kilojoules increase.	M2		

EXCELLENCE	Determine and apply an appropriate model for a situation involving graphs.	5	<p>$A = 80$ (initial conditions) Find k When $t = 10$, $W = 72.1$ This gives $k = -0.015$.</p> <p>To find minimum point, find the intersection of the two graphs.</p> $80 \times 2^{-0.015t} = 2^{0.015t}$ $80 = 2^{0.03t}$ $\ln 80 = \ln 2 \times 0.03t$ $t = 210.7 \text{ weeks}$ $= 211$ <p>Minimum rubbish is $W = 8.969 \text{ kg}$.</p>	M2	<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 code E.</p>
				E		

Judgement Statement

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

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.