Assessment Schedule – 2008

Mathematics: Manipulate algebraic expressions and solve equations (90284)

Evidence Statement

	Assessment Criteria	No.	Evidence	Code	Judgement	Sufficiency
ACHIEVEMENT	Manipulate algebraic expressions	1	$3x^3 + 4x^2 - 5x - 2$	A1	No alternative.	**ACHIEVEMENT:**
		2	$\frac{2}{m^3}$	A1	Or equivalent.	4 of code A including at least one A1 and one A2.
		3	$\frac{x+2}{x-3}$	A1	No alternative.	
	Solve equations	4	$x > \frac{3}{8}$	A2	Or equivalent.	Replacement Evidence: Questions 7, 8, 9, 10.
		5	$x = 8$	A2	Or equivalent.	
		6	$x + y = 50$ $8x + 2.5y = 196.5$ $x = 13,\ y = 37$ Hence 37 children	A2	Equations must be formed. No alternative.	

ACHIEVEMENT WITH MERIT	Solve problems involving equations	7	$(2x + 30)(2x + 15) - 450 = 900$ $4x^2 + 90x - 900 = 0$ $x = 7.5$ or -30 Hence 7.5 metres.	A1 A2 M		**ACHIEVEMENT WITH MERIT:** Achievement plus 2 of Code M OR 3 of Code M.
		8	$30\,000 = 45\,000 \times 0.96^{n+2}$ $\ln \frac{2}{3} = (n + 2) \ln 0.96$ $n = 7.93$ months Hence 8 months.	A1 A2 M		Replacement Evidence: Question 10.
		9	$x + 7 = \frac{-12}{x}$ $x^2 + 7x + 12 = 0$ $x = -3, -4$ Hence $(-3,4)$ and $(-4,3)$.	A1 A2 M		
ACHIEVEMENT WITH EXCELLENCE	Choose algebraic techniques and strategies to solve problem(s)	10	Total Area = 25 m^2 Area top Δ $= \frac{1}{2} x (10 - h)$ Area side Δ $= \frac{1}{4} (5 - x) h$ Hence $\frac{1}{2} x (10 - h) +$ $2 \times \frac{1}{4} (5 - x) h + xh = 25$ $2x + h = 10$ $x = \frac{10 - h}{2}$ Or similar triangles $\frac{5}{x} = \frac{10}{10 - h}$ $10x = 50 - 5h$ $x = 5 - \frac{1}{2} h$	A1 M E A1 M E		**ACHIEVEMENT WITH EXCELLENCE:** Merit plus E.

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
Manipulate algebraic expressions $4 \times$ A including at least one A1 and one A2.	Solve problems involving equations Achievement plus $2 \times$ M OR $3 \times$ M	Choose algebraic techniques and strategies to solve problem(s) Achievement with 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.