



GCSE MARKING SCHEME

MATHEMATICS - LINEAR

NOVEMBER 2012

PAPER 2 Higher Tier	Marks	FINAL MARK SCHEME Comments						
5.(a) 7.6 (cm) (b)(i) Mid-points 5,6,7,8,9 $5 \times 4 + 6 \times 2 + 7 \times 1 + 8 \times 1 + 9 \times 2$ Intention their $\sum fx / 10$ 6.5 (cm) (ii) Modal class $4.5 \leq s < 5.5$ Median $5.5 \leq s < 6.5$	B1 B1 M1 m1 A1 B1 B1 7	FT their mid points including bounds provided they fall within the classes. $20 + 12 + 7 + 8 + 18 (= 65)$ (65/10) For correct evaluation of $\sum fx / 10$ Accept '4.5 to 5.5' Accept '5.5 to 6.5'						
6.(a) Radius 2.3 $\pi \times 2.3^2 \times 8.4$ $139.5(998\dots \text{cm}^3)$ to $139.7(\text{cm}^3)$ (b)(i) $(x^2 =) 3.4^2 + 5.6^2$ $x^2 = 42.92$ or $x = \sqrt{42.92}$ 6.6 (cm) (ii) $\frac{1}{2} \times 5.6 \times 3.4$ $9.5(2 \text{ cm}^2)$	B1 M1 A1 M1 A1 A2 M1 A1 9	Do not accept from premature approximate SC1 for an answers $558(.3992\dots \text{cm}^3)$ to $558.7(\text{cm}^3)$ Depends on previous M1 and process of $\sqrt{}$. Mark final answer. A1 for $6.5(51\dots \text{cm})$ Mark final answer						
7.(a) Correct frequency polygon (b) 22 60 90 100 (c) Uniform scale vertically Plotting all points at the upper bounds All 6 accurate upper bound plots joined with a curve or lines (d)(i) Median for their graph (ii) Idea UQ – LQ, with an attempt at readings and intention to subtract Interquartile range accurate for their graph	B2 B1 B1 B2 B1 B1 M1 A1 10	Must be accurate between bounds of 1 small square horizontally and on the line vertically B1 if translated OR joined with curve or not joined OR one plot incorrect within the polygon <i>Ignore frequency diagram as working</i> Appropriate for their values in (b) FT their cumulative table only if cumulative Ignore if (50, 0) omitted Must be accurate on vertical lines and horizontal lines B1 if one error in plots, OR for all vertical plots correct but not at upper bounds FT from their cumulative graph in (d)(i) and (ii) (Answer in the range 63.5 to 64 (cm)) (67 to 68 - 60 to 60.5) (Answers in the range 6.5 to 7.5)						
8.(a)(i) <table border="1" data-bbox="293 1435 533 1518" style="margin-left: auto; margin-right: auto;"> <tr> <td>45.5</td> <td>46.5</td> </tr> <tr> <td>54.5</td> <td>55.5</td> </tr> <tr> <td>61.5</td> <td>62.5</td> </tr> </table> (ii) $161296(.875 \text{ cm}^3)$ or $161297 (\text{cm}^3)$ ISW (b) Least: $(x-0.5)(y-0.5)(z-0.5)$	45.5	46.5	54.5	55.5	61.5	62.5	B2 B2 B2 6	B1 for any 3 correct entries Accept .49' RECURRING as being equivalent to .5 FT their greatest provided all $>$ given values and $<47, <56$ and <63 respectively B1 for selection of 46.5 (x) 55.5 (x) 62.5 (sight of digits 161296 or 161297). Allow SC1 for an answer of 164.5, or for selecting and recording addition for their greatest values B1 for minor slip, or omission of brackets, there needs to be intention to multiply, or if further incorrect working B0 for sight of the 3 terms only without intention to multiply
45.5	46.5							
54.5	55.5							
61.5	62.5							
9. $\tan A = 3.2/7$ $24.567\dots(^{\circ})$ rounded or truncated	M1 A2 3	A1 for $0.457\dots$ or $\tan^{-1}3.2/7$ SC1 for calculating B, an answer of $65.43\dots(^{\circ})$, <i>this is not for an answer labelled as A</i>						