Mark Scheme 2342
June 2006

Section A

1	Correct enlargement	**2**	**W1** for 2 sides correct **or** **W1** for correct use of wrong sf. tolerance ± half a square
2	Axes scaled uniformly	**1**	
	EITHER HISTOGRAM		
	All heights correct	**1**	
	All bars of equal width with no gaps	**1**	
	OR FREQUENCY POLYGON		
	All heights correct	**1**	
	Midpoints used and joined with ruled lines,	**1**	condone joining last point to the origin.
3 (a) (i)	76	**1**	
(ii)	No + No two angles or sides equal	**1**	**must f.t** if x = 48 or 56 and then: Yes + two equal angles
(b)	140	**3**	**W1** for 50 seen **and** **M1** for 360-(105 + 65 + their 50)
	[Angles on a] straight line [add up to 180°]	**1**	
	[Angles in a] four sided shape [add up to 360°]	**1**	
4	68	**4**	**W3** for 92 seen **OR** **M3** for 160 – (32+60) **OR** **W2** for 60 seen **or** **W1** for 20 seen **and** **W1** for 32 seen **and** **M1** for 160 – (their 32 + their 60)

Alternative methods

	$\frac{17}{40}$	**W3**	42.5%		**W3**
	$\frac{23}{40}$ seen	**W2**	57.5%	seen	**W2**
or	$\frac{8}{40}$ or $\frac{15}{40}$ seen	**W1**	20% or 37.5% seen		**W1**
and	1 – their $\frac{23}{40}$	**M1**	100 – their 57.5		**M1**
	or 160 – their $\frac{23}{40}$ of 160	**M1**	or 160 – their 57.5% of 160		**M1**

5	(a)	74	**2**	**W1** for $\frac{37}{50}$ or figs74 seen **M1** for 37 × 2
	(b)	(i) 456.4	**3**	**Working must be seen** **W2** for figs 4564 with working **or** **M1** for a complete method **and** **W1** for figs 1304, 489, 326, 168, 448 or 84 seen **Answer only W1**
		(ii) $3\frac{5}{6}$ o.e. or $3.8\dot{3}$ {eg $3\frac{10}{12}$}	**3**	**W2** for $\frac{15}{6}+\frac{8}{6}$ oe or $\frac{23}{6}$ oe or $3+\frac{3}{6}+\frac{2}{6}$ oe or 3.83[3...] **or** **M1** for $\frac{a+b}{6}$ o.e. either *a* or *b* must be correct **or** **W1** for 2.5 and 1.33 or better
	(c)	120	**2**	**W1** for 40 or 90 or 30 seen

6	(a)	20	**2**	**W1** for 25 seen
	(b)	Final answer $[x =]\frac{y+3}{5}$ or $[x =]\frac{y}{5}+\frac{3}{5}$ or $[x =](y+3)\div 5$ or $[x =](y+3)/5$	**2**	**W1** for answer $[x =]\frac{\pm y \pm 3}{\pm 5}$ or $[x =]y+3\div 5$ or $[x =]y+3/5$ or $\frac{x = y+3}{5}$ **or** **M1** for $5x = y+3$ or $\frac{y}{5} = x-\frac{3}{5}$
7	(a)	0.05	**2**	**M1** for $1-(0.25+0.05+0.15+0.4+0.1)$
	(b)	50 [out of 200]	**2**	**M1** for 0.25×200 **or** **W1** for $\frac{50}{200}$ as answer
8	(a)	Final answer $16x-13$	**2**	**W1** for each **or** **W1** for $6x+2+10x-15$ Accept 3 terms correct
	(b)	$(x-5)(x-2)$	**2**	**W1** for $(x\pm 5)(x\pm 2)$

9	(a)	-1, 0, 1, 2, 3, 4	**3**	**W2** for 5 or 6 correct and maximum of 1 extra **or** **W1** for 4 correct and maximum of 1 extra **or** **W1** for -3, 0, 3, 6, 9, 12 **or** **M1** for $\frac{-5}{3} < n \leq 4$
	(b)	$x = 5$ and $y = -2$	**3**	**Dep. on M2** **M1** for Equation [2] × 2 Accept two terms correct **AND** **M1** for Addition of equations **Dep. on first M1** Accept two terms correct **OR** **M1** for Equation [1] × 2 **and** Equation [2] × 3 Accept two terms correct in each equation **AND** **M1** for Subtraction of equations **Dep. on first M1** Accept 2 terms correct **<u>Alternative method</u>** **M1** for $3x - 2(8 - 2x) = 19$ **M1dep** for $3x - 16 + 4x = 19$ allow 1 error in each line **Answer only W1**
10	(a)	$x \times x \times (x + 3)$	**2**	**W1** for $x \times x \times x + 3$ or $x^2 \times (x + 3)$ **or** **W1** for base = x^2 **M1** for use of $V = lbh$ must be algebraic
	(b)	112	**1**	
	(c)	4 points plotted to within 1 small square	**1**	f.t. from table
		Smooth curve within 1 small square of points	**1**	dep on mark for points and through their plotted points
	(d)	2.25 to 2.4	**1**	

Section B

11	(a)	32, -64	**2**	**W1** for each Allow f.t. **W1** for – 2 × their 32
	(b)	7, 9, 11	**2**	**SC1** for 5, 7, 9 **W1** for two correct in correct positions. Condone the inclusion of *n*
	(c)	$4n-1$ oe	**2**	**W1** for 4*n* seen
12	(a)	(i) 121 to 125°	**1**	
		(ii) 37 to 39	**2**	**W1** for 7.5 to 7.7 seen
	(b)	2 hours 45 minutes	**3**	**W2** for 2.75 or 2h 75 min or 3h 15 min seen **or** **M1** for $187 \div 68$
	(c)	(i) 222	**2**	**M1** for 150×1.48 or **W1** for figs 222
		(ii) [-]5	**3**	**W2** for 35 seen **or** **M1** for $51.80 \div 1.48$ **and** **M1** for (their 35) – 30 **Alternative method:** **M1** for 51.80 - 30 × 1.48 **and** **M1** for 'their 7.40'÷1.48 **or** **SC1** for answer 7.4[0]
13	2.5 or $2\frac{1}{2}$ or $\frac{30}{12}$ oe, i.s.w		**3**	**W2** for embedded answer **W1** for $12x-3$ or $4x-1=9$ seen **and** **M1** for 12x = 27 + 3 f.t or 4x = 9 + 1 f.t.
14	(a)	0.96	**2**	**W1** for figs 95[9....] or figs 96 **W1** for 8.39 or 8.74 seen
	(b)	1.25×10^9	**2**	**W1** for figs 125 seen

15	(a)	28.5	**4**	**W3** for answer 23.5 or 33.5 or 28 if 14.5 etc seen or 29 if 15.5 etc seen **or** **M3** for $\frac{\sum ft}{\sum f}$ with four of 15, 25, 35, 45, 55 used for *t* **or** **W2** for 1710 seen or $10\times15+27\times25+16\times35+6\times45+1\times55$ **or** **M2** for $\frac{\sum ft}{\sum f}$ with *t* in range $10 \le t \le 20$ etc **or** **M1** for $\sum ft$ with *t* in range $10 \le t \le 20$ etc **or** **W1** for four of 15, 25, 35, 45, 55 seen or used
	(b)	(i) 27 to 29	**1**	
		(ii) 12 to 14	**2**	**W1** for 46 to 48 seen
16	(a)	105.4[0]	**3**	**SC2** for 105 **or** **M2** for $124\times\frac{85}{100}$ **or** **M1** for $124\times\frac{15}{100}$ or 18.6[0] or 142.6[0]
	(b)	950	**3**	**M2** for $836\div0.88$ **or** **M1** for 88% = 836
17	(a)	3.69 to 3.71	**3**	**M2** for 3.72 **or** **M2** for $h=\frac{186}{\pi\times4^2}$ **or** **M1** for $\pi\times4^2\times h=186$ **or** **W1** for 50.2 to 50.3 seen
	(b)	3999 or 3.999	**2**	**W1** for figs 3999 **or** **M1** for 186×21.5 g
			1	allow kg if attempt to convert eg 3.999 kg

18 (a) 13.8 or 14 **4**

W3 for 13.7 to 13.9
or
M2 for $\sqrt{6.25^2 + 12.3^2}$
or
M1 for $6.25^2 + 12.3^2$
If trigonometry is used:
M1 for $\text{Tan}^{-1}\frac{12.3}{6.25}$ (=63.06) oe
and
M1dep for $\frac{12.3}{\sin 63.06}$ o.e.

After W0 allow **W1** for any answer to 2 or 3 significant figures **after Pythagoras or trig seen**

(b) 14.6 to 14.7 **3**

W2 for answer 15.7 to 15.8 or 28.2 to 28.3
or
M2 for 12.3 ÷ sin 57
or
M1 for CD × sin 57 = 12.3
or
M1 for $\sin 57 = \frac{12.3}{CD}$
alternative method:
M1 BC = $\frac{12.3}{\tan 57}$ [=7.98...]
and
M1dep $\sqrt{12.3^2 + their 7.98^2}$