Mark Scheme 2341
June 2006

Section A

Question	Full marks		Part marks	
1 (a)	6	**W1**		accept answer seen anywhere in (a)
(b)	13	**W1**		
(c)	9	**W1**		
(d)	14	**W1**		
2 (a)	**B C A E D**	**W2**		accept @ 27 , 95 , 140 , 215 , 315
			M1	1 error *or* fully reversed
(b)	C	**W1**		accept @ 95
3 (a)	384	**W1**		clear indication throughout
(b)	7 5	**W2**	**W1**	each
(c)	13	**W1**		
(d)	2·35	**W1**		
(e)	7·8	**W1**		
(f)	21	**W1**	**SC1**	63 as final answer and 21 in working
(g)	36	**W1**		
4 (a)	9	**W1**		accept embedded throughout condone eg 9 in working, 18 on answer line condone eg 9*x* throughout
(b)	15	**W1**		
(c)	3	**W1**		condone 7 – 3 but not –3
5	× ✓ × ✓ ×	**W2**		accept clear indication
			M1	3 correct
			SC2	2 correct ✓, rest blank
			or **SC1**	1 correct ✓, rest blank
6 (a)	120	**W2**	**W1**	70 *or* total 85 *or* 160 *or* 140
(b) (i)	5 (hours) 28 (min) ***or*** **… hours 328 min**	**W2**	**W1**	5 (hrs) *or* 28 (min) *or* 328 *or* clear complete attempt to find timespan from 1706 to 2234
(b) (ii)	**Whittington by 3 mins**	**W3**	**M2**	3 mins *or* 27 and 24 both seen
			or **M1**	27 *or* 24
			& **M1**	two times < 30 min found & correctly subtracted
(c) (i)	½, 0·5, 50% oe	**W2**		any correct equivalent, not incorrect form
			M1	evens, 50-50, 6 seen (not as numerator)
(c) (ii)	all 5 ways, only: HH TT EH ET HT	**W2**		ignore repeats
			M1	3 more ways found
7 (a)	cube	**W1**		
(b)	¾	**W1**		oe fraction eg 75/100 not decimals
(c)	36	**W2**	**M1**	multiple of 3 between 10, 50 *or* 16 *or* 25 *or* 49
(d)	rhombus	**W2**	**M1**	square *or* parallelogram *or* diamond
8	correct size	**W2**		mark intention, need not be ruled
			W1	2 lines correct size & relative orientation
			or **M1**	fully correct enlargement using other scale factor

Question	Full marks	Part marks
9 (a) (i)	76 **W1**	
(a) (ii)	'no' + correct reason **W1**	ft their (i) for yes/no awareness that isosceles implies: **2** angles/sides equal/same *or* angles/sides not different *or* other property of isosceles triangle
(b)	19·5 to 20·5 **W3**	**M1** correct length of one side ± 0·2 *&* **M1** correct perpendicular ± 0·2 *or* use of base × <u>height</u> ÷ 2 *&* **W1** correct base × correct height ÷ 2 found correctly **8 7 6** 5 5·7 6·7 20 19·95 20·1
(c)	120 **W2**	**M1** 60 *or* 360 ÷ 6 soi *or* correct use of <u>180</u>(n-2) soi n
10	68 **W4**	**W3** 92 <u>method1</u> **M1** 32 seen *&* **M2** 60 *or* **M1** 20 soi (160 ÷ 8) *&* **W1** 160 – their 32 – their 60 correctly calculated <u>method 2</u> **M2** 23/40 *or* 57·5% *or* **M1** one equiv fraction/% found *&* **M1** subtracting correctly: their fraction from 1 *or* their % from 100 *or* their value from 160

Section B

Question	Full marks		Part marks
11 (a)	neck curve &/or shoulder horizontal only	**W1**	indication may be either /both sides of mirror line, or across it
	figure 1 &/or adjacent spaces only	**W1**	
(b)	correct position shown	**W1**	back above left *or* front above right *or* back below right
12 (a) (i)	1796, 1896, 1998, 2179, 2184	**W2**	condone decimal points, transfer errors **M1** V FG M C N one error *or* fully reversed
(a) (ii)	1998	**W1**	accept Mazda &/or MPV
(b) (i)	one thousand eight hundred (and) ninety six	**W1**	eighteen hundred and ninety six not eighteen ninety six
(b) (ii)	45	**W1**	
(b) (iii)	480	**W3**	**M2** figs 48 **M1** 16, *or* 72 ÷ 4·5 seen *&* **M1** their 16 × 30 seen W0 72 × 30
13 (a)	$4c + 6d$	**W2**	**M1** $4c$ *or* $6d$ (inc $4c6d$) seen
(b)	$8e + 20$	**W1**	
14 (a)	correct position	**W1**	throughout: position clearly indicated
(b)	correct position	**W1**	mark positioning, not notation eg E in correct place, others blank
(c)	correct position	**W1**	in square or 4 corners, not edge or corner
(d)	correct position	**W1**	
15 (a)	**bar drawn to 0·8**	**W1**	± 1mm
(b)	5·6	**W1**	
	lead	**W1**	
	silica	**W1**	**SC1** metal(s)
16 (a)	**(** $4{\cdot}1^2$ + 1·79 **)** ÷ √9·61 = 6	**W2**	no incorrect or contradictory **M1** brackets 16·81 *or* 18·6 *or* 3·1 seen *or* 16 + 2 ÷ √9 *or* √10 *or* 3
(b)	0·96	**W2**	**M1** 8·39 *or* 8·74 *or* figs 95(99…) *or* 96
17 (a)	– 5	**W1**	**acc equivalent, direction and quantity**
(b)	7, 9, 11	**W2**	condone letters eg 7n 9n 11n condone extras if correct **M1** any <u>two</u> correct in correct position **SC1** 5, 7, 9
18 (a)	11	**W1**	
(b)	marked correctly	**W1**	± 1mm
(c)	102 to 103 inc	**W2**	**M1** 14 or 15 or 16 used (implied by 99 to 100, or 95)

<table>
<tr><th colspan="2">Question</th><th>Full marks</th><th></th><th>Part marks</th></tr>
<tr><td>19</td><td>(a)</td><td>105·4 (0)</td><td>W3</td><td>M2 18·6(0) or 105 or 0·85 × 124 oe
or M1 0·15 × 124 oe or 142·6(0)
intention to <u>find %</u> that combine to make 15% (or 85%) <u>& to combine</u> these, eg list or spider diagram – complete method, arithmetic errors</td></tr>
<tr><td></td><td>(b)</td><td>1·4(0), 140p</td><td>W3</td><td>or ft their (a) – 104 for W3
or M2 104
or M1 11 or 99
or subtract their 2 values</td></tr>
<tr><td>20</td><td>(a)</td><td>rectangle 5 by 2 drawn ruled ± 1mm</td><td>W2</td><td>condone internal lines
W1 either dimension, ruled ± 1mm
or M1 intention to draw rectangle 5 by 2 (but outside tolerance and not ruled)</td></tr>
<tr><td></td><td>(b) (i)</td><td>4</td><td>W1</td><td></td></tr>
<tr><td></td><td>(b) (ii)</td><td>50 to 50·3 ft (i)</td><td>W2</td><td>M1 16π soi or ft their (b)(i)
<table><tr><td>2</td><td>8</td><td>16</td></tr><tr><td>4π</td><td>64π</td><td>256π</td></tr><tr><td>12·6</td><td>201</td><td>804</td></tr></table></td></tr>
<tr><td>21</td><td>(a)</td><td>176</td><td>W2</td><td>M1 <u>evidence</u> on diagram or on list of values
or 6</td></tr>
<tr><td></td><td>(b)</td><td>correct diagram
14 | 9
15 | 4 5 9
16 | 1 2 3 6 6 8
17 | 0 1 5 7
18 | 1</td><td>W3</td><td>do not penalise inverted diagrams
M1 use of 4 of stems 14 to 18
& M1 3 correct, 'ordered leafs'
or 4 'leafs' correct but not ordered</td></tr>
<tr><td></td><td>(c)</td><td>any valid comment

must be:
true for this data (bod on stems)
comparing M, F heights directly or by implication</td><td>W1</td><td>comparing max, min, average, range or shape of chart, <u>not</u> sample size
<table><tr><td></td><td><u>boys</u></td><td><u>girls</u></td><td></td></tr><tr><td>max</td><td>192</td><td>181</td><td>tallest boy taller</td></tr><tr><td>min</td><td>164</td><td>149</td><td>shortest boy taller</td></tr><tr><td>median</td><td>176(ft√)</td><td>166</td><td>average boy taller</td></tr><tr><td>range</td><td>18</td><td>22</td><td>girls more spread out</td></tr></table></td></tr>
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