

Modular Practice Paper 1H: Mark scheme

Key

- A Accuracy mark when following on from a correct method. Method does not necessarily need to be seen and can be implied
- B Independent of method
- M Correct method
- Q Quality of written communication
- dep Dependent on a previous mark being awarded
- oe or equivalent
- ft follow through, e.g. if a careless mistake is made, a mark is lost for this part of a question but subsequent marks can be awarded if the student works correctly from here

Question	Answer	Marks	Additional guidance	Grade/AO/FS
1ai	$\frac{1}{2}$	B1		D
1aii	$\frac{2}{3}$	B1		D
1b	the second one, 41 out of 60 is approximately $\frac{2}{3}$	B2	B1 if reason is a little unconvincing	D AO2
2	$(60/100) \times 240$ or 144 and $2 \times 240 +$ their 144 624 $((639.60 - \text{their } 624) \div 624) \times 100$ 2.5%	M1 A1 M1 A1		D AO3 FS
3	$\frac{7}{15} + \frac{2}{5}$ (= $\frac{13}{15}$) 1 – their $\frac{13}{15}$ (= $\frac{2}{15}$) their $\frac{2}{15} = 4$ 30 games played their $(14 \times 3 + 12 \times 1 + 4 \times 0)$ 54 points, so yes, they qualified	M1 M1 M1 A1 M1 A1	or won 14 and drew 12 ft their figures for their points calculation must have correct points total for final mark	D AO3 FS
4a	correct key correct and ordered 0 9 1 3 5 5 6 8 8 9 2 1 2 2 3 9 3 8 4 8 5 8	B1 B2	e.g. 3 8 = 38 B1 one or two errors or omissions or B1 correct but not ordered	D
4b	only four of these results are greater than 24 ... most people require significantly fewer lessons than this	B2	oe ... median = 20, this is a better average to use or small sample (not representative) so mean of 24 might be a reasonable estimate B1 for partial explanation	B AO2
5	correct mid-points \times correct frequencies Σ their mid-point \times frequency their $956 \div 100$ 9.56	M1 M1 M1dep A1	$2 \times 14, 6 \times 23, 10 \times 33, 14 \times 20, 18 \times 10$; allow one error must be consistent, all lcb or all ucb dep on 2nd M1	C

6	480×0.2 or 520×0.3 $96 + 156$ or their $(480 \times 0.2) +$ their (520×0.3) their $252 \div 1000$ 0.252	M1 M1 M1 A1	oe	C AO2
7a	leading question no box for disagree	B1 B1	oe oe	C AO2 FS
7b	Is the building of a new motorway likely to destroy the wildlife of the area? Choices such as ... It will cause a lot of loss of wildlife It might cause some loss of wildlife It will not cause any loss of wildlife Don't know	B1 B1	oe ... must not be a leading question oe ... must cover all the options and offer enough choice of response	C AO2 FS
8a	9	B1		B
8b	median at 26 quartiles at 18 and 33 whiskers at 5 and 50	B1 B1 B1	\pm half a small square tolerance	B
8c	comparing medians: 1st batch = 26 and 2nd batch = 31 or 'on average' more growth comparing IQRs: 1st batch = 15 and 2nd batch = 11 more consistent growth/less spread use of <i>Growfast</i> is justified	B1 B1 Q1	or comparing ranges: 1st batch = 45 and 2nd batch = 32 more consistent growth/less spread ii correct conclusion from accurate readings and clear statements	B AO2 FS
9	24 41 175 205	B1 B1 B1 B1	accept 173 to 177 accept 203 to 207 The total of these two must be 380 – lose 1 mark if not	A
10a	evidence of width \times freq. density 90	M1 A1	oe any of 15, 25, 25, 20 or 5 correct	A
10b	attempt to halve the area 22	M1 A1	ft from their answer to part a	A
11	any one of 46 650 000, 46 750 000, 504 500 or 505 500 their $46\,750\,000 \div$ their 504 500 92.6660...	B1 M1 A1	their maximum population \div their minimum area accept 92.7 accept 93 with working	A*

12	$0.8 + 0.2 \times 0.6$ 0.92 (their 0.92) ² 0.8464 correct working with key steps clearly shown	M1 A1 M1dep A1 Q1	oe oe dep on 1st M1 oe ii	A* AO2 FS
	Total	54		