Y9 Chp 4 Markscheme

1 a i secondary B**1 mark**

ii primary B**1 mark**

b Examples include: questionnaires / surveys / data logging B**1 mark** (for correct example)

2 a

0	**8**
1	**2 6**
2	**4 5 6 7 7**
3	**3 3 6 8**
4	**1 7**

B**2 marks** (minus 1 for each error)

Key: 1 | 2 = 12 boats B**1 mark**

b 27 A**1 mark**

c 39 A**1 mark**

d i.) Recognition that the new median is the 8th data value M**1 mark**

Therefore no change in the median value (…it is still 27) A**1 mark**

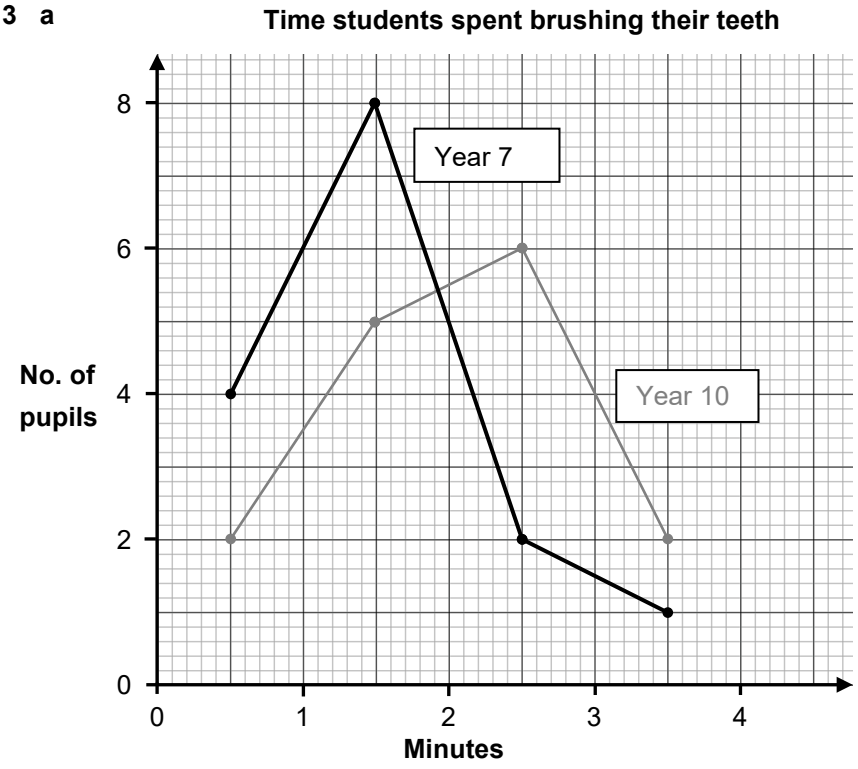
ii.) Recognition that the new maximum data value is 53. E.g. 47 + 6

New range: 53 – 8 = 45 M**1 mark (either)**

Therefore range *increases* by 6 boats A**1 mark**

N.B. Errors in the stem and leaf diagram lead to 'follow through' marks for parts b, c and d.

3 a



B3 marks (B1 for heights of points,

B1 for midpoints of intervals,

B1 for joining with straight line segments)

b The range is the same for both (0 to 4 minutes) B**1 mark**

The Year 10 students spent more time brushing their teeth than the Year 7 students. B**1 mark**

OR (B1) Any other sensible inference from the two frequency polygons

E.g. modal class for Year 7 is 1< m ≤ 2, whereas the modal class for Year 10 is 2< m ≤ 3.

Median for Year 10 students is in the class 2< m ≤ 3, whereas The median for Year 7 is in the class 1< m ≤ 2.

4 a

Time taken in minutes	Frequency	Midpoint	Midpoint × frequency
$0 < m \leq 10$	0	5	0
$10 < m \leq 20$	10	15	150
$20 < m \leq 30$	28	25	700
$30 < m \leq 40$	23	35	805
$40 < m \leq 50$	4	45	180
Total	65		**1835**

5 marks **(**M1 for midpoints;
M1 for multiplying m by f;
M1 for correct m × f column;

The mean delivery time = 1835 ÷ 65 = 28.23 minutes. A1 for 1835 ÷ 65;
A1 for correct answer)

b (65+1)/2 = 33rd value, $20 < m \leq 30$ M**1 mark**, A1 mark

c $20 < m \leq 30$ B**1 mark**

d Yes, the mean is less than 30 minutes. A**1 mark** (ft from part **a**)

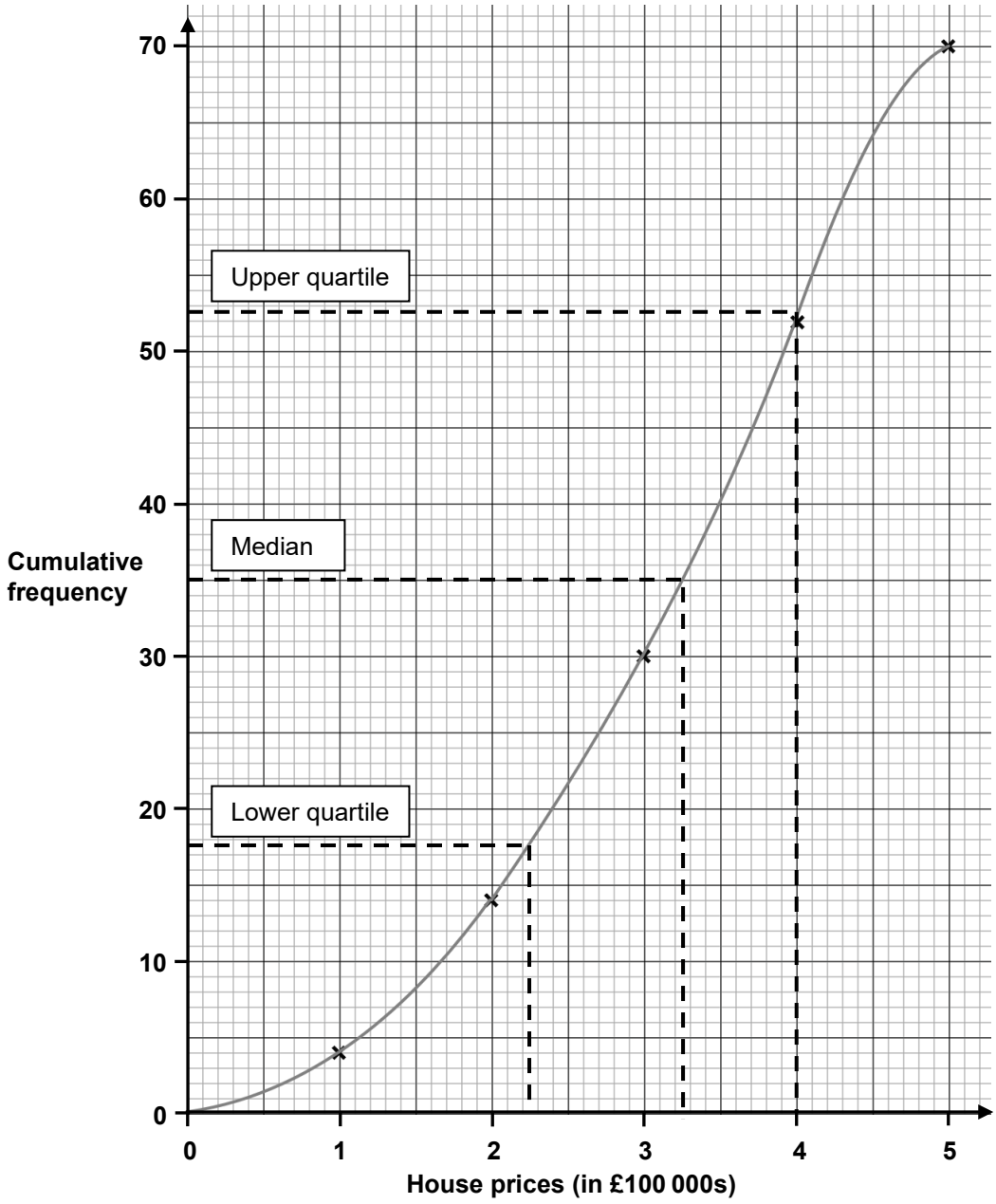
Or, 'Yes' followed by statement that implies that they have considered the mean value.

E.g. Yes. All averages considered are values of 30 or less.

5 a

Price range	Frequency	Cumulative frequency
$0 < p \leq 100\,000$	4	4
$100\,000 < p \leq 200\,000$	10	14
$200\,000 < p \leq 300\,000$	16	30
$300\,000 < p \leq 400\,000$	22	52
$400\,000 < p \leq 500\,000$	18	70

A**1 mark** (for cumulative frequency)



b

B2 marks (B1 mark for points at end of intervals,

B1 mark for joining in a smooth curve)

c Any answer between £320 000 and £330 000 A**1 mark**

d Upper quartile = £400 000 A**1 mark**
Lower quartile = £225 000 A**1 mark**

IQR = 400 000 – 225 000 = £175 000 (Allow answers from £165 000 to £185 000) A**1 mark**

e Evidence of reading up and across from £450 000 (approx. 64)

70 – 64 (or "their value") M**1mark (for either)**

= 6 houses A**1 mark**

(accept sensible answer based on their graph reading)

6. **a** 60 B**1mark** cao
40 B**1mark** cao

b correct bars

B**1 mark** for $30 < x \leq 40$ with an area of 2½ squares
B**1 mark** for $40 < x \leq 70$ with an area of 3 squares
SC: $\frac{0}{4}$ give M1 if clearly using area or frequency density

7. a (i) 152 B**1mark** cao

(ii) 177 B**1mark** cao

b 3

B1 for median marked at 167
B1 ft for postion of box with its ends at “152” and “177”
B1 for position of whiskers with ends at 132 and 182
NB: For any points plotted between 141 and 149 give a tolerance of an extra □ 1 square

Overall mark: /44