

1 Sandeep sat 11 tests in January 2020

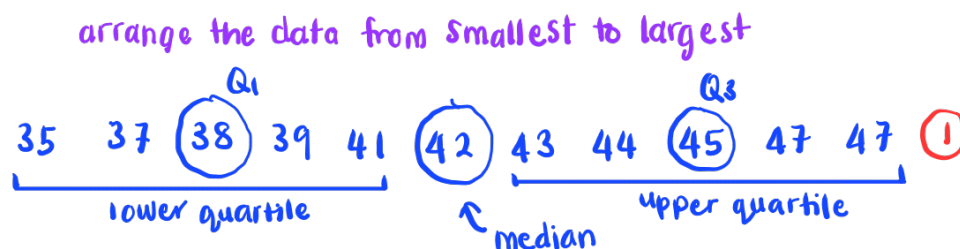
Each test was marked out of 60

Here are his test results.

45 41 35 44 38 47 47 39 37 43 42

- (a) Find the interquartile range of these test results.

Show your working clearly.



$$\text{Median} = \frac{11+1}{2} = 6\text{th term}$$

$$\text{interquartile range} = Q_3 - Q_1$$

$$= 45 - 38$$

$$= 7$$

$$7 \quad 1$$

(3)

median of lower quartile, $Q_1 = 38$ median of upper quartile, $Q_3 = 45$ 1

Sandeep also sat some tests in May 2020

Each test was marked out of 60

The median of the May 2020 test results is 42

The interquartile range of the May 2020 test results is 12

- (b) In which month, January or May, were Sandeep's test results more consistent?

Give a reason for your answer.

January. As the interquartile range is lower. 1

(1)

(Total for Question 1 is 4 marks)

2 The table gives information about the heights, in centimetres, of some plants.

| Height (h cm) | Frequency |
|------------------|-----------|
| $10 < h \leq 20$ | 35 |
| $20 < h \leq 35$ | 45 |
| $35 < h \leq 50$ | 75 |
| $50 < h \leq 70$ | 40 |
| $70 < h \leq 80$ | 8 |

frequency density

$$35/10 = 3.5$$

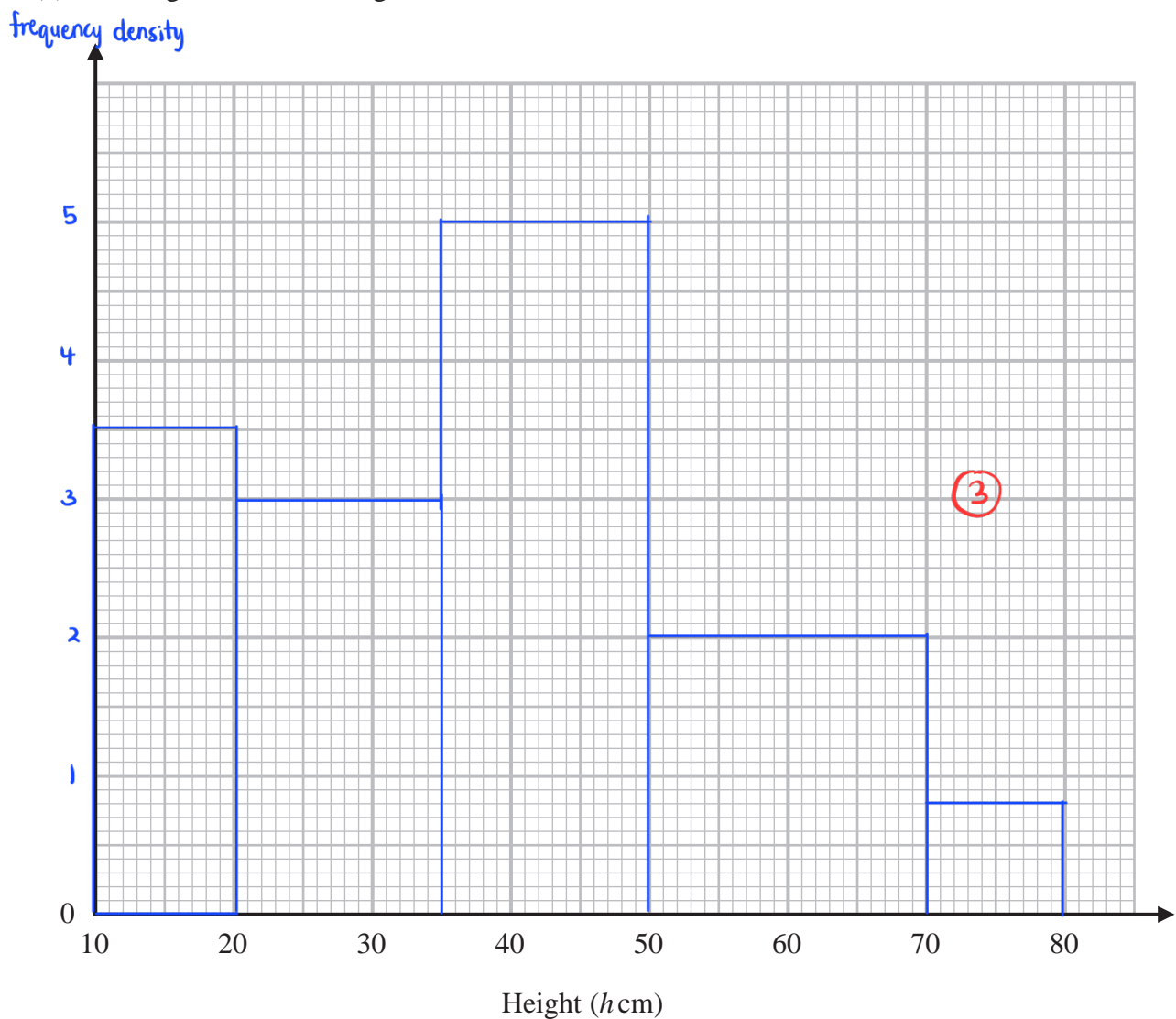
$$45/15 = 3$$

$$75/15 = 5$$

$$40/20 = 2$$

$$8/10 = 0.8$$

(a) On the grid, draw a histogram for this information.



(3)

- only consider 40 to 50 from $35 < h \leq 50$ class.
- (b) Work out an estimate for the number of these plants with a height greater than 40 cm.

$$\frac{2}{3} \times 75 + 40 + 8 \text{ (1)}$$

$$= 50 + 40 + 8$$

$$= 98 \text{ (1)}$$

98

(2)

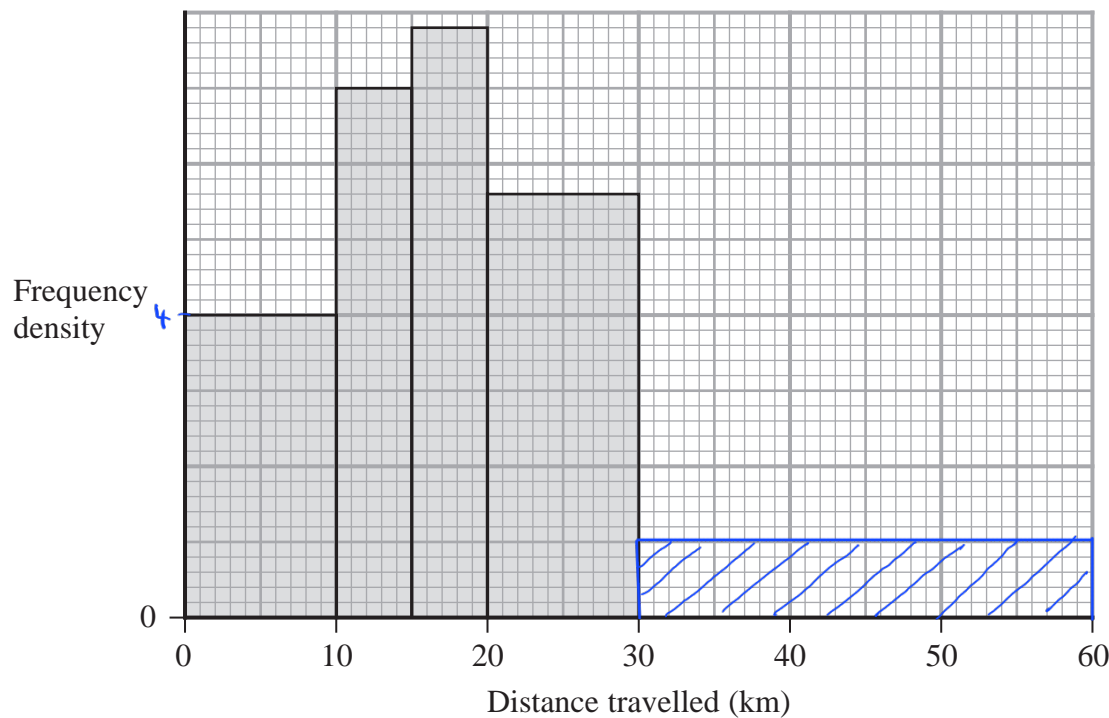
(Total for Question 2 is 5 marks)

- 3 The table and histogram give information about the distance travelled, in order to get to work, by each person working in a large store.

| Distance (d km) | Frequency |
|--------------------|-----------|
| $0 \leq d < 10$ | 40 |
| $10 \leq d < 15$ | 35 |
| $15 \leq d < 20$ | 39 |
| $20 \leq d < 30$ | 56 |
| $30 \leq d < 60$ | 30 |

②

frequency = Frequency density \times class width



①

Finding height of first bar :

$$\text{Frequency density} = \frac{40}{10} = 4$$

\therefore 5 small square = 1 frequency density

$$\text{2nd bar : } 5 \times 7 = 35$$

$$\text{3rd bar : } 5 \times 7.8 = 39$$

$$\text{4th bar : } 10 \times 5.6 = 56$$

Using the information in the table and in the histogram,

(a) complete the table,

(2)

(b) complete the histogram.

(1)

One of the people working in the store is chosen at random.

(c) Work out an estimate for the probability that the distance travelled by this person, in order to get to work, was greater than 25 km.

From 25 to 30 km :

$$0.5 \times 56 = 28$$

From 30 to 60 km :

$$30$$

$$\text{Total frequency : } 40 + 35 + 39 + 56 + 30 = 200 \quad (1)$$

$$\text{Probability } d > 25 \text{ km} = \frac{30 + 28}{200} = \frac{58}{200} \quad (1)$$

$$\begin{array}{r} 58 \\ \hline 200 \\ \hline \end{array} \quad (2)$$

(Total for Question 3 is 5 marks)