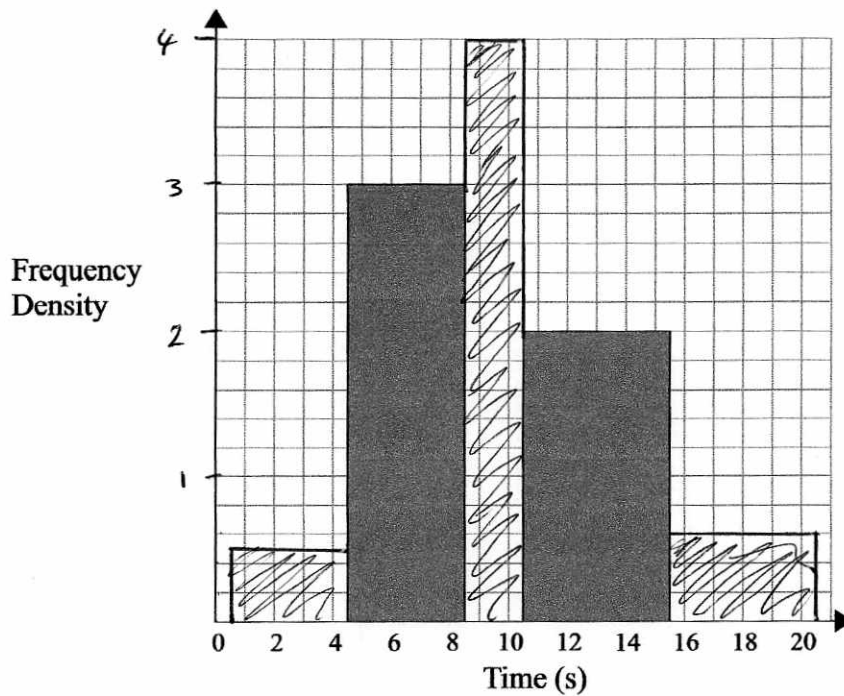


HISTOGRAMS

- 1 The partially completed histogram and the partially completed table show the times taken, to the nearest second, for a group of people to complete a puzzle.



Time (seconds)			Frequency
0.5	1-4	4.5	2
4.5	5-8	8.5	12
8.5	9-10	10.5	8
10.5	11-15	15.5	10
15.5	16-20	20.5	3

F.d
 0.5
 3
 4
 2
 0.6

(a) Complete the table.

(b) Complete the histogram

One of the participants is selected at random.

(c) Estimate the probability that this participant completed the puzzle in under 10 seconds.

(Total for question 1 is 5 marks)

$$c) \quad 2 + 12 + \frac{3}{4}(8) = 20$$

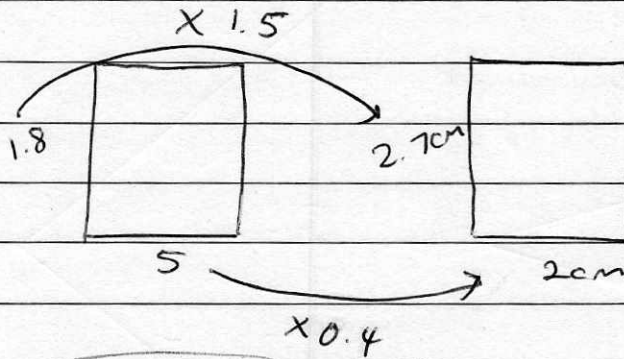
$$\frac{20}{35}$$

2/

9-13

8.5-13.5 width 5 freq 9

$$f.d = \frac{9}{5} = 1.8$$



Scale factor height $\times 1.5$
 Scale factor width $\times 0.4$.

14-20

13.5-20.5 width: 7 freq: 14

$$f.d = \frac{14}{7} = 2$$

$$\text{Height} : 2 \times 1.5 = \underline{\underline{3\text{cm}}}$$

$$\text{Width} : 7 \times 0.4 = \underline{\underline{2.8\text{cm}}}$$

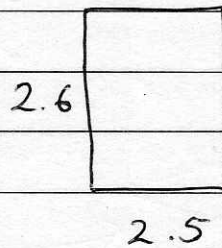
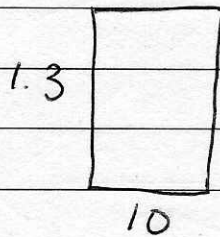
3/

10 - 19

9.5 - 19.5

width = 10 freq: 13

$$f.d = \frac{13}{10} = 1.3$$



Scale factor: height $\times 2$
width $\times 0.25$

a/

20 - 24

19.5 - 24.5

width = 5 freq: 7

$$f.d = \frac{7}{5} = 1.4$$

height: $1.4 \times 2 = 2.8 \text{ cm}$

width: $5 \times 0.25 = 1.25 \text{ cm}$

b/

25 - 28

24.5 - 28.5

width = 4 freq: 15

$$f.d = \frac{15}{4} = 3.75$$

height: $3.75 \times 2 = 7.5 \text{ cm}$

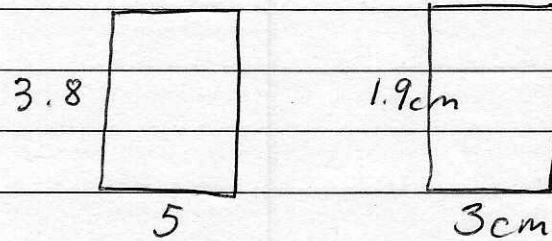
width: $4 \times 0.25 = 1 \text{ cm}$

4.

$$10 - 14$$

$$9.5 - 14.5 \quad \text{width} = 5 \quad \text{freq} = 19$$

$$f.d = \frac{19}{5} = 3.8$$



width scale factor $\times 0.6$

height scale factor $\times 0.5$

a/

$$15 - 18$$

$$14.5 - 18.5 \quad \text{width} 4 \quad \text{freq} 41$$

$$f.d = \frac{41}{4} = 10.25$$

$$\text{width} : 4 \times 0.6 = 2.4 \text{ cm}$$

$$\text{height}^{\text{ht}} : 10.25 \times 0.5 = 5.125 \text{ cm}$$

b/

$$17 - 20$$

$$18.5 - 20.5 \quad \text{width} 2 \quad \text{freq} 26$$

$$f.d = \frac{26}{2} = 13$$

$$\text{width} = 2 \times 0.6 = 1.2 \text{ cm}$$

$$\text{height} = 13 \times 0.5 = 6.5 \text{ cm}$$