Exercise walk-through

4.1
Data types, tables and charts

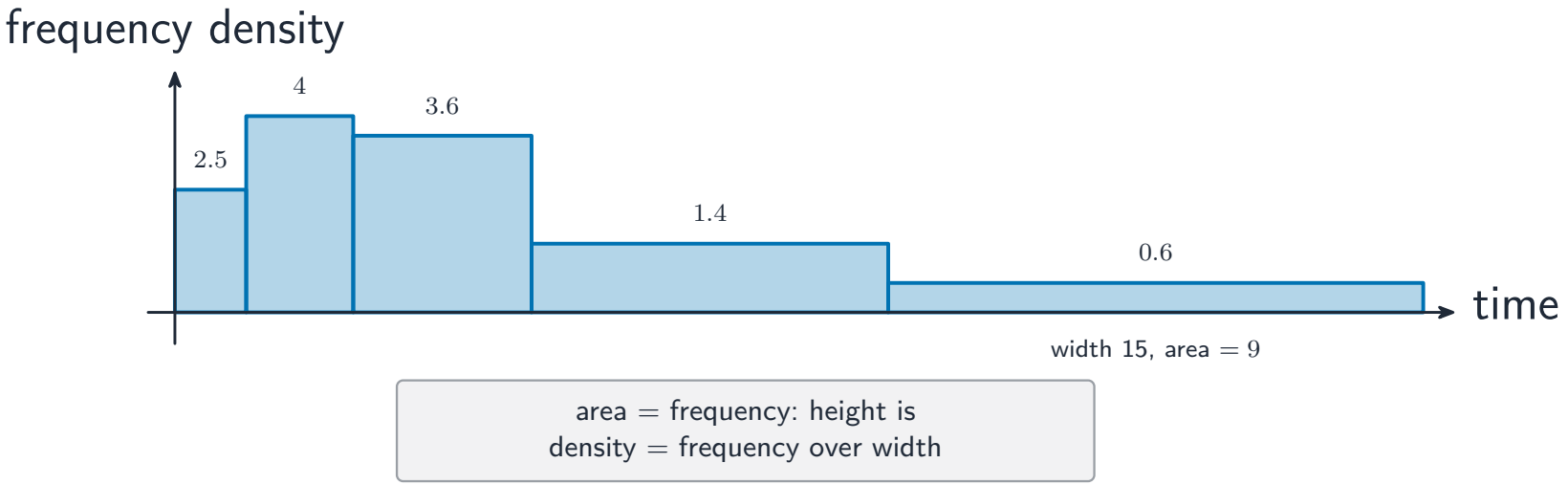
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Extension diagrams: unequal histograms, CF and box plots

- (Extension) A **histogram** can have **unequal class intervals** .
- Then the height of each bar is the **frequency density** :
- The area of each bar is the frequency.
- For classes of widths 2, 3, 5, 10 and 15 with frequencies 5, 12, 18, 14 and 9, the heights are 2.5, 4, 3.6, 1.4 and 0.6.

$$\text{frequency density} = \frac{\text{frequency}}{\text{class width}}$$

Figure: Extension diagrams: unequal histograms, CF and box plots

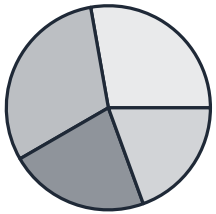


area = frequency: height is
density = frequency over width

- Height = **frequency density**
- Area of each bar = frequency

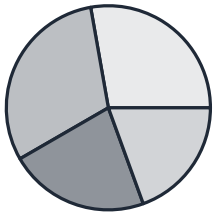
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2.1 Classify: number of pets per household; favourite colour; mass of luggage. [3]



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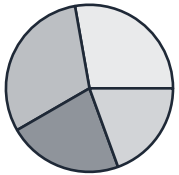
2.1 Discrete; qualitative; continuous.

Exercise 2.2

2.2 A two-way table shows 25 students: 14 play football, 11 basketball, 5 both. Fill the four cells and find how many play neither. [3]

	yes	no	total
A			
B			
total			

2.3 Name the best chart for showing each: parts of a daily schedule; the trend of temperature over a week; comparing two classes' favourite subjects. [3]

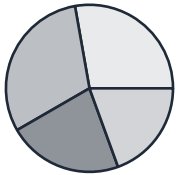


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2.2 Football only 9, both 5, basketball only 6, neither 5.

2.3 Pie chart; line graph; dual bar chart.

Exercise 3.1

3.1 *(Original.)* The two-way table below shows 40 shoppers by gender and purchase.

	Bought	**Did not buy**	**Total**
Male	12	a	20
Female	b	7	c
Total	25	d	40

(a) Find a, b, c and d. (b) A shopper is chosen at random: find the probability they are female AND bought. [4]



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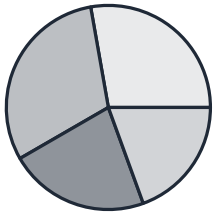
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3.1 (a) $a = 20 - 12 = 8$; $d = 40 - 25 = 15$; $b = 25 - 12 = 13$; $c = 8 + 7 = 15$ (check: $13 + 7 = 20$? No: $c = b + 7 = 20$; and $c = 40 - 20 = 20$ ✓ with $b = 13$). (b) $\frac{13}{40}$.

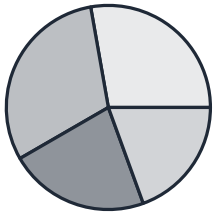
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3.2 Read the weekday column, 3rd row for the departure; the 2nd and 4th rows' arrival minus departure cells for the durations; state both reads with units.

Local review guidance: row/column totals used to fill cells; cells consistent BOTH ways; chart choices justified by data type. This is authored classroom guidance.