Drawing histograms

ANSWERS

1

Complete the table.

Time, t (minutes)	Frequency	Class width	Frequency density
$0 < t \leq 10$	20	**10**	**2**
$10 < t \leq 20$	50	**10**	5
$20 < t \leq 30$	30	10	3

2

Complete the table.

Mass, m (kg)	Frequency	Class width	Frequency density
$0 < m \leq 5$	15	**5**	3
$5 < m \leq 10$	20	5	4
$10 < m \leq 20$	10	10	1

3

Complete the table.

Height, h (cm)	Frequency	Class width	Frequency density
$20 < h \leq 30$	30	10	3
$30 < h \leq 50$	40	20	2
$50 < h \leq 55$	25	5	5

4

Complete the table. Which class is the most crowded?

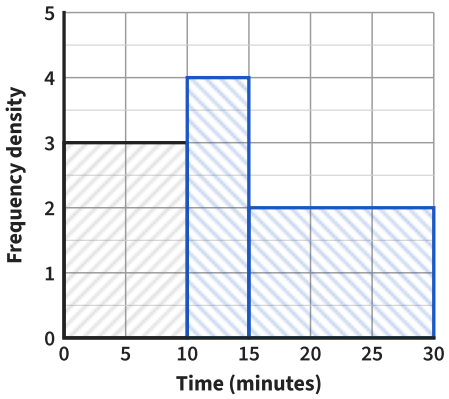
Age, a (years)	Frequency	Class width	Frequency density
$10 < a \leq 12$	8	2	4
$12 < a \leq 16$	12	4	3
$16 < a \leq 20$	20	4	5

Answer 16 < a ≤ 20

5

Draw the histogram.

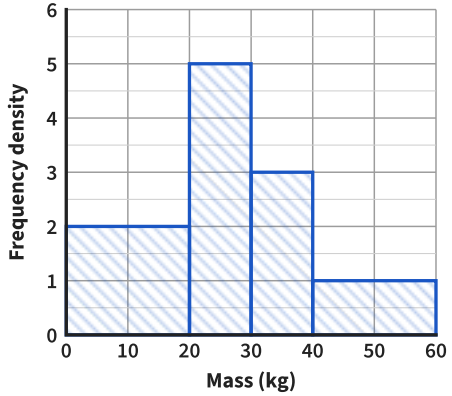
Time, t (minutes)	Frequency	Class width	Frequency density
$0 < t \leq 10$	30	10	3
$10 < t \leq 15$	20	5	4
$15 < t \leq 30$	30	15	2



6

Draw the histogram.

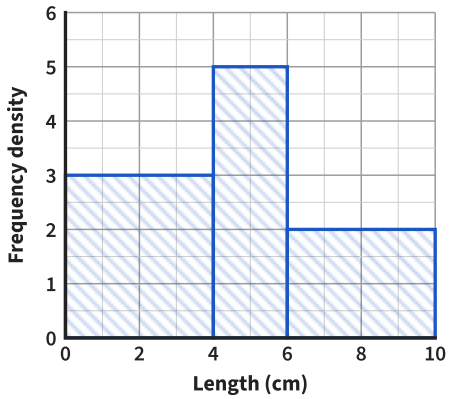
Mass, m (kg)	Frequency	Class width	Frequency density
$0 < m \leq 20$	40	20	2
$20 < m \leq 30$	50	10	5
$30 < m \leq 40$	30	10	3
$40 < m \leq 60$	20	20	1



7

Complete the table. Draw the histogram.

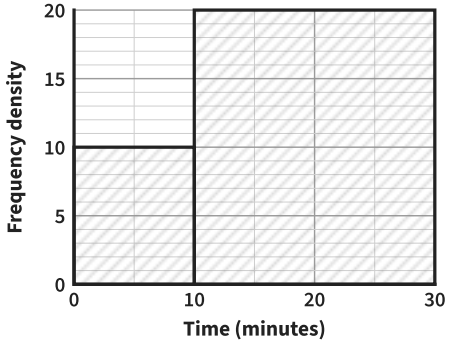
Length, l (cm)	Frequency	Class width	Frequency density
$0 < l \leq 4$	12	4	3
$4 < l \leq 6$	10	2	5
$6 < l \leq 10$	8	4	2



8

Sam draws this histogram.
Explain his mistake.

Time, t (minutes)	Frequency
$0 < t \leq 10$	10
$10 < t \leq 30$	20



he drew the frequencies as the heights

Answer both bars 1 tall

Drawing histograms *further practice*

ANSWERS

9

The class $10 < t \leq 30$ has a frequency of 30. Work out the frequency density.

30 ÷ 20

Answer 1.5

10

The class $0 < t \leq 4$ has a frequency of 12.
The class $4 < t \leq 12$ has a frequency of 20.
Which bar is taller?

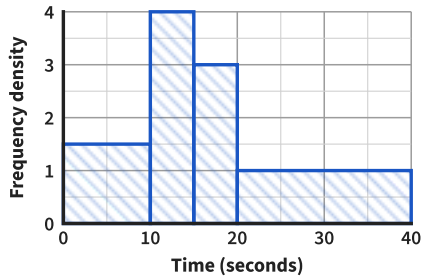
12 ÷ 4 = 3, 20 ÷ 8 = 2.5

Answer $0 < t \leq 4$

11

Draw the histogram.

Time, t (s)	$0 < t \leq 10$	$10 < t \leq 15$	$15 < t \leq 20$	$20 < t \leq 40$
Frequency	15	20	15	20



Answer heights 1.5, 4, 3, 1

12

The class $20 < m \leq 40$ has a frequency of 30. Ella draws its bar 30 tall.
Is she right? Explain.

30 ÷ 20 = 1.5

Answer No: it is 1.5 tall

13

Two classes have the same frequency.
Class A is 10 wide and its bar is 4 tall.
Class B is 5 wide. How tall is its bar?

4 × 10 = 40

40 ÷ 5 = 8

Answer 8

14

Work out the frequency density of each class.

Height, h (cm)	Frequency
$140 < h \leq 150$	15
$150 < h \leq 155$	20
$155 < h \leq 160$	18
$160 < h \leq 180$	12

15 ÷ 10, 20 ÷ 5, 18 ÷ 5, 12 ÷ 20

Answer 1.5, 4, 3.6, 0.6

15

A histogram has no numbers on its frequency density axis.
The class $10 < t \leq 20$ has a frequency of 25 and its bar is 5 squares tall.
The class $20 < t \leq 40$ has a frequency of 30. How many squares tall is its bar?

25 ÷ 10 = 2.5, so a square is 0.5

30 ÷ 20 = 1.5, 1.5 ÷ 0.5 = 3

Answer 3 squares

16

Why does the height of each bar show frequency density, not frequency?

frequency density shows how crowded

a wide class does not look bigger

Answer the widths are not equal