Histograms: Reading Histograms

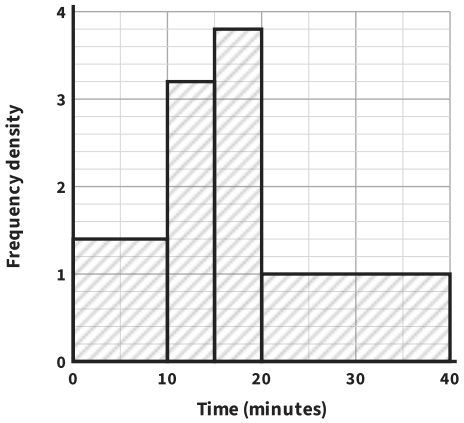
ANSWERS

1

frequency = frequency density × class width

Use the histogram to complete the table.

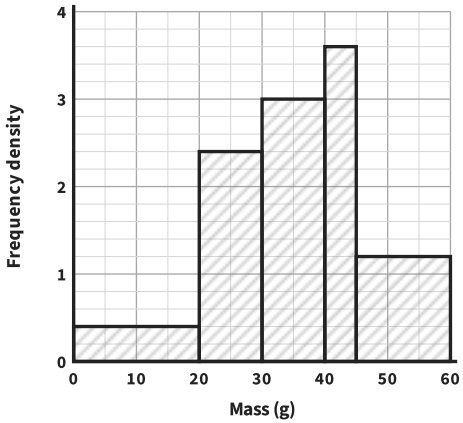
Time (minutes)	Class width	Frequency density	Frequency
$0 < t \leq 10$	**10**	**1.4**	**14**
$10 < t \leq 15$	**5**	*3.2*	*16*
$15 < t \leq 20$	**5**	*3.8*	*19*
$20 < t \leq 40$	**20**	*1*	*20*



2

Use the histogram to complete the table.

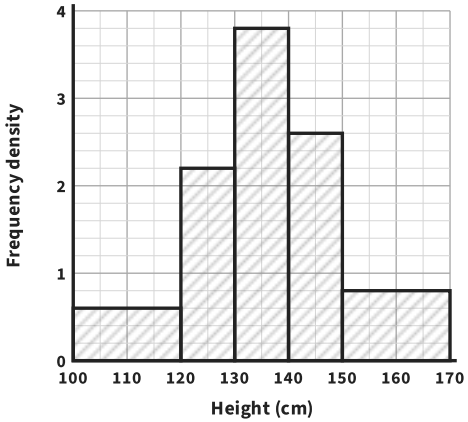
Mass (g)	Class width	Frequency density	Frequency
$0 < m \leq 20$	**20**	**0.4**	**8**
$20 < m \leq 30$	*10*	*2.4*	*24*
$30 < m \leq 40$	*10*	*3*	*30*
$40 < m \leq 45$	*5*	*3.6*	*18*
$45 < m \leq 60$	*15*	*1.2*	*18*



3

Use the histogram to complete the table.

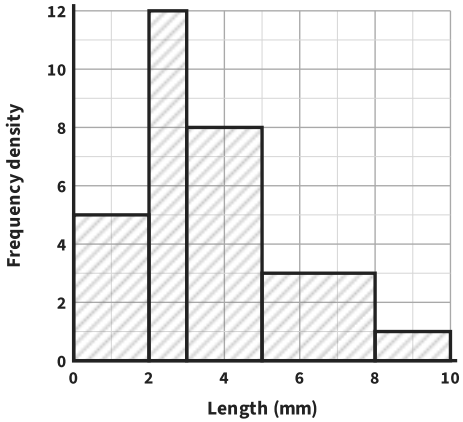
Height (cm)	Class width	Frequency density	Frequency
$100 < h \leq 120$	**20**	**0.6**	**12**
$120 < h \leq 130$	*10*	*2.2*	*22*
$130 < h \leq 140$	*10*	*3.8*	*38*
$140 < h \leq 150$	*10*	*2.6*	*26*
$150 < h \leq 170$	*20*	*0.8*	*16*



4

Use the histogram to complete the table.

Length (mm)	Class width	Frequency density	Frequency
$0 < l \leq 2$	**2**	**5**	**10**
$2 < l \leq 3$	*1*	*12*	*12*
$3 < l \leq 5$	*2*	*8*	*16*
$5 < l \leq 8$	*3*	*3*	*9*
$8 < l \leq 10$	*2*	*1*	*2*



Histograms: Reading Histograms

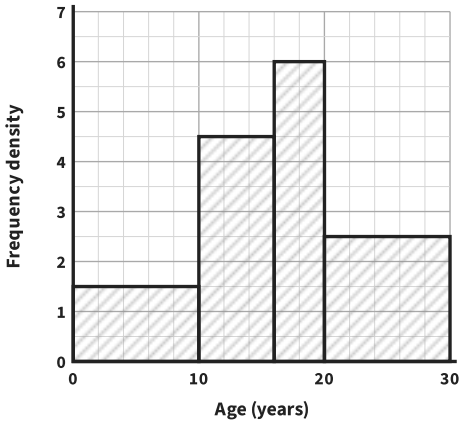
ANSWERS

5

Use the histogram to complete the table. How many people are there altogether?

Age (years)	Class width	Frequency density	Frequency
$0 < a \leq 10$	10	1.5	15
$10 < a \leq 16$	6	4.5	27
$16 < a \leq 20$	4	6	24
$20 < a \leq 30$	10	2.5	25

Total 91



6

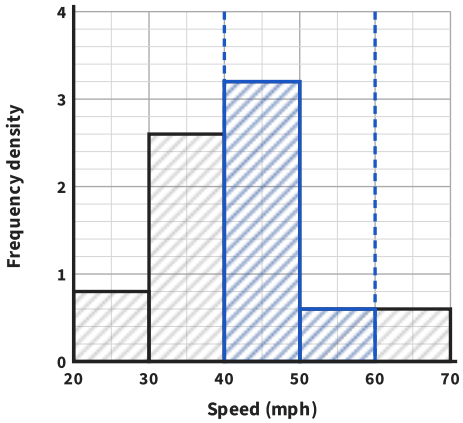
Estimate how many cars were going between 40 and 60 mph.

10 × 3.2 = 32

10 × 0.6 = 6

32 + 6 = 38

Estimate 38



7

Estimate how many people took between 25 and 50 seconds.

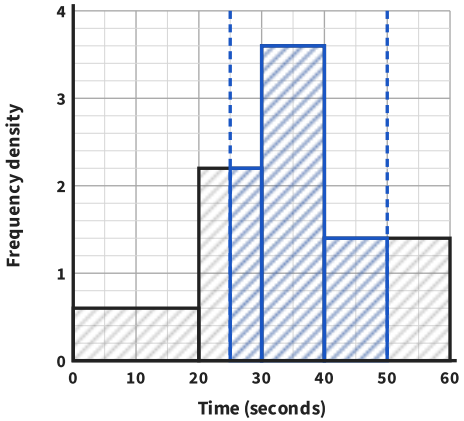
5 × 2.2 = 11

10 × 3.6 = 36

10 × 1.4 = 14

11 + 36 + 14 = 61

Estimate 61



8

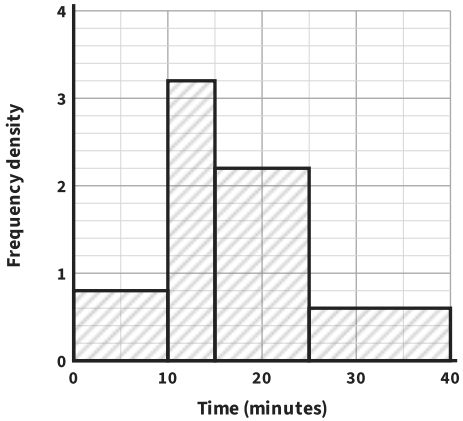
Explain Sam's mistake. How many people took between 10 and 15 minutes?

Sam says that 3.2 people took between 10 and 15 minutes.

3.2 is the frequency density

5 × 3.2 = 16

People 16



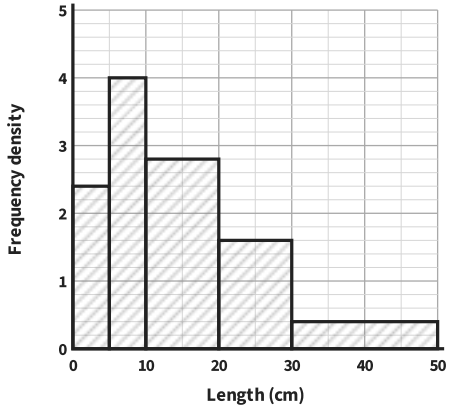
Histograms: Reading Histograms *further practice*

ANSWERS

9

Use the histogram to find the frequency of each class.

Length (cm)	Frequency
$0 < l \leq 5$	12
$5 < l \leq 10$	20
$10 < l \leq 20$	28
$20 < l \leq 30$	16
$30 < l \leq 50$	8



10

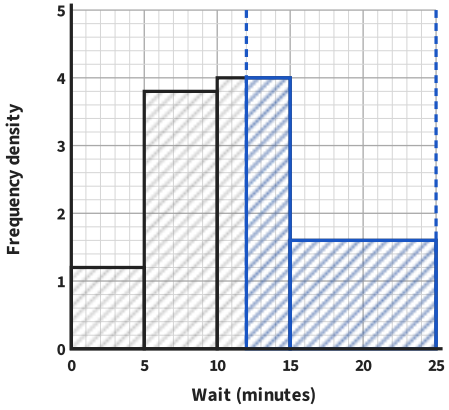
Estimate how many people waited more than 12 minutes.

3 × 4 = 12

10 × 1.6 = 16

12 + 16 = 28

Estimate 28

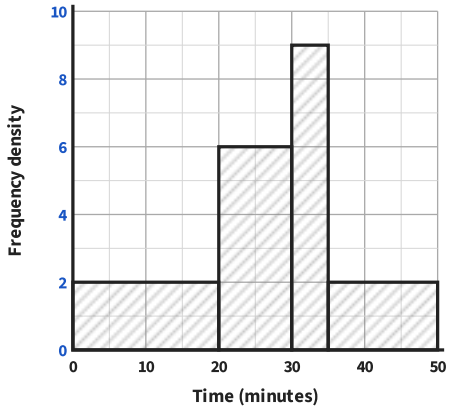


11

There are no numbers up the side. The bar for $20 < t \leq 30$ shows 24 people. Complete the table.

Time (minutes)	Frequency
$0 < t \leq 20$	16
$20 < t \leq 30$	24
$30 < t \leq 35$	18
$35 < t \leq 50$	12

24 people in 12 squares: 2 a square



12

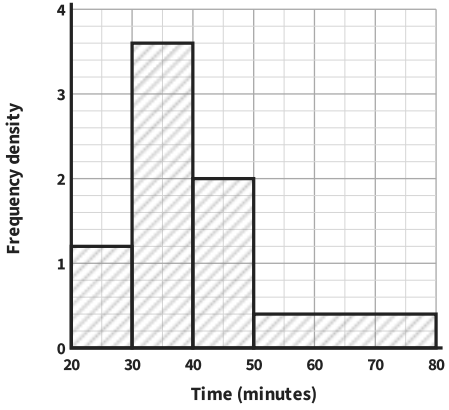
The histogram shows the times of every runner in a race. What percentage of the runners took more than 40 minutes?

Total: 12 + 36 + 20 + 12 = 80

More than 40: 20 + 12 = 32

32 ÷ 80 × 100

Percentage 40%



Histograms: Reading Histograms *further practice*

ANSWERS

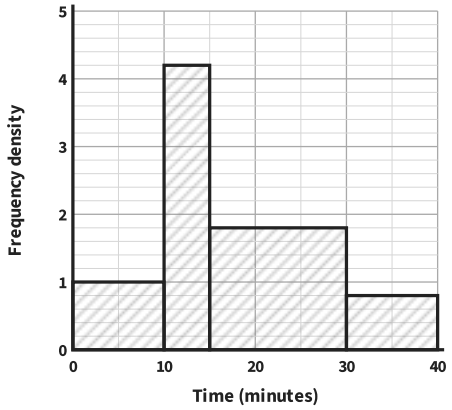
13

Which class has more people, $10 < t \leq 15$ or $15 < t \leq 30$? How many more?

10 to 15: 5 × 4.2 = 21

15 to 30: 15 × 1.8 = 27

Answer 15 to 30, by 6



14

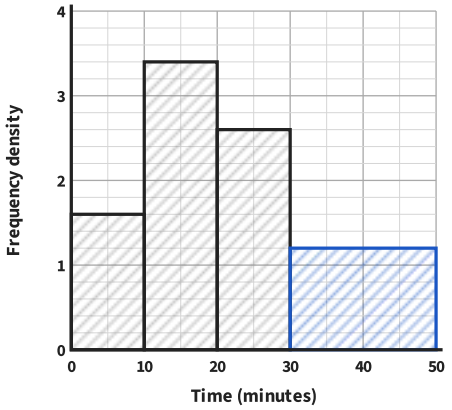
There are 100 people altogether. The bar for $30 < t \leq 50$ is missing. Draw it.

16 + 34 + 26 = 76

100 − 76 = 24

24 ÷ 20 = 1.2

Height 1.2



15

The histogram shows reaction times. Estimate how many were between 0.3 and 0.6 seconds.

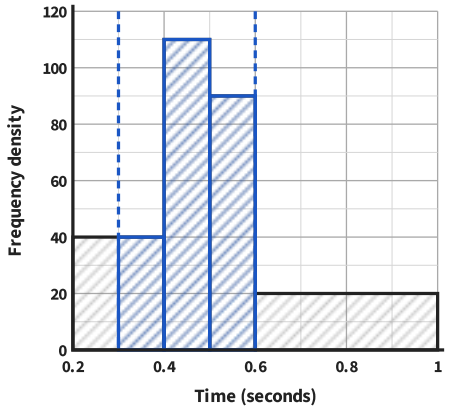
0.1 × 40 = 4

0.1 × 110 = 11

0.1 × 90 = 9

4 + 11 + 9 = 24

Estimate 24



16

Explain Ali's mistake. Then estimate the number between 25 and 35.

Ali estimates the number between 25 and 35 as 24 + 30 = 54.

Ali used the whole of both bars

5 × 2.4 + 5 × 3 = 12 + 15

Estimate 27

