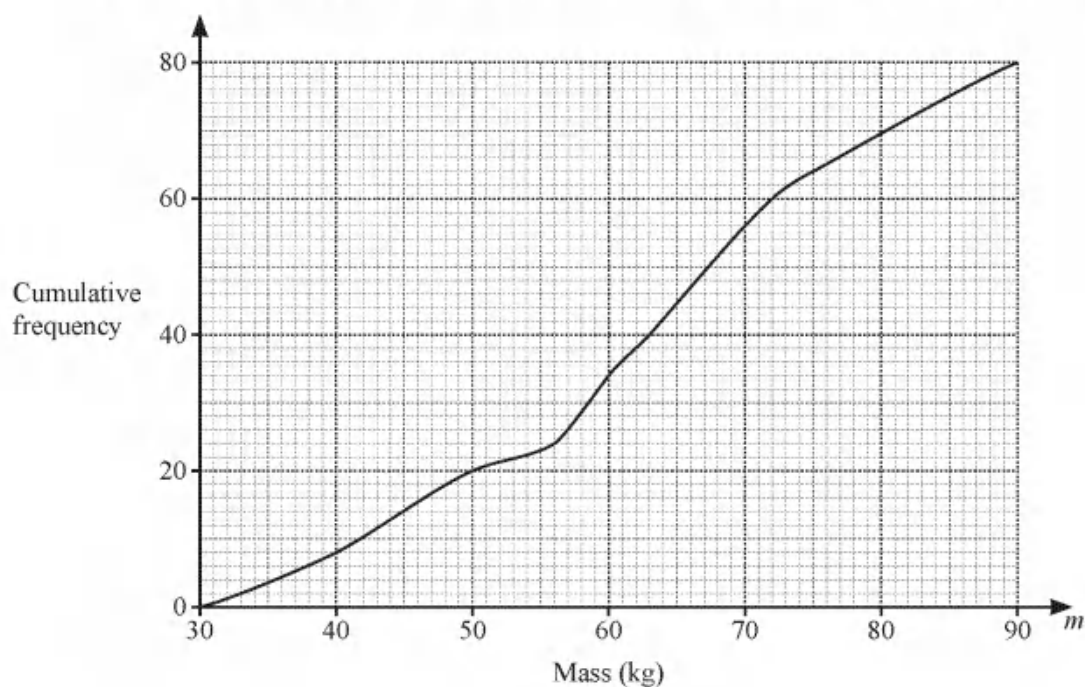
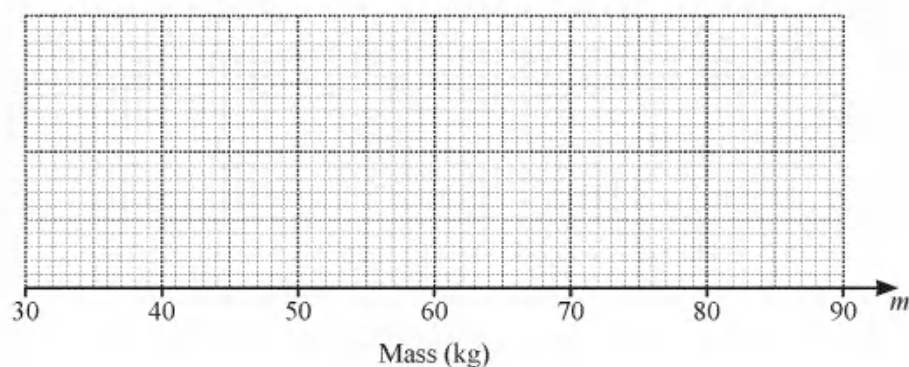


26 - (0580/41_Winter_2021_Q3) - Statistics, Probability

The cumulative frequency diagram shows information about the mass, m kg, of each of 80 boys.



(a)



On the grid, draw a box-and-whisker plot to show the information in the cumulative frequency diagram. [4]

(b) Use the cumulative frequency diagram to find an estimate of

(i) the 30th percentile,

..... kg [2]

(ii) the number of boys with a mass greater than 75 kg.

..... [2]



(c) (i) Use the cumulative frequency diagram to complete this frequency table.

Mass (m kg)	$30 < m \leq 40$	$40 < m \leq 50$	$50 < m \leq 60$	$60 < m \leq 70$	$70 < m \leq 80$	$80 < m \leq 90$
Frequency	8	12			14	10

[1]

(ii) Calculate an estimate of the mean mass of the boys.

..... kg [4]

(iii) Two boys are chosen at random from those with a mass greater than 70 kg.

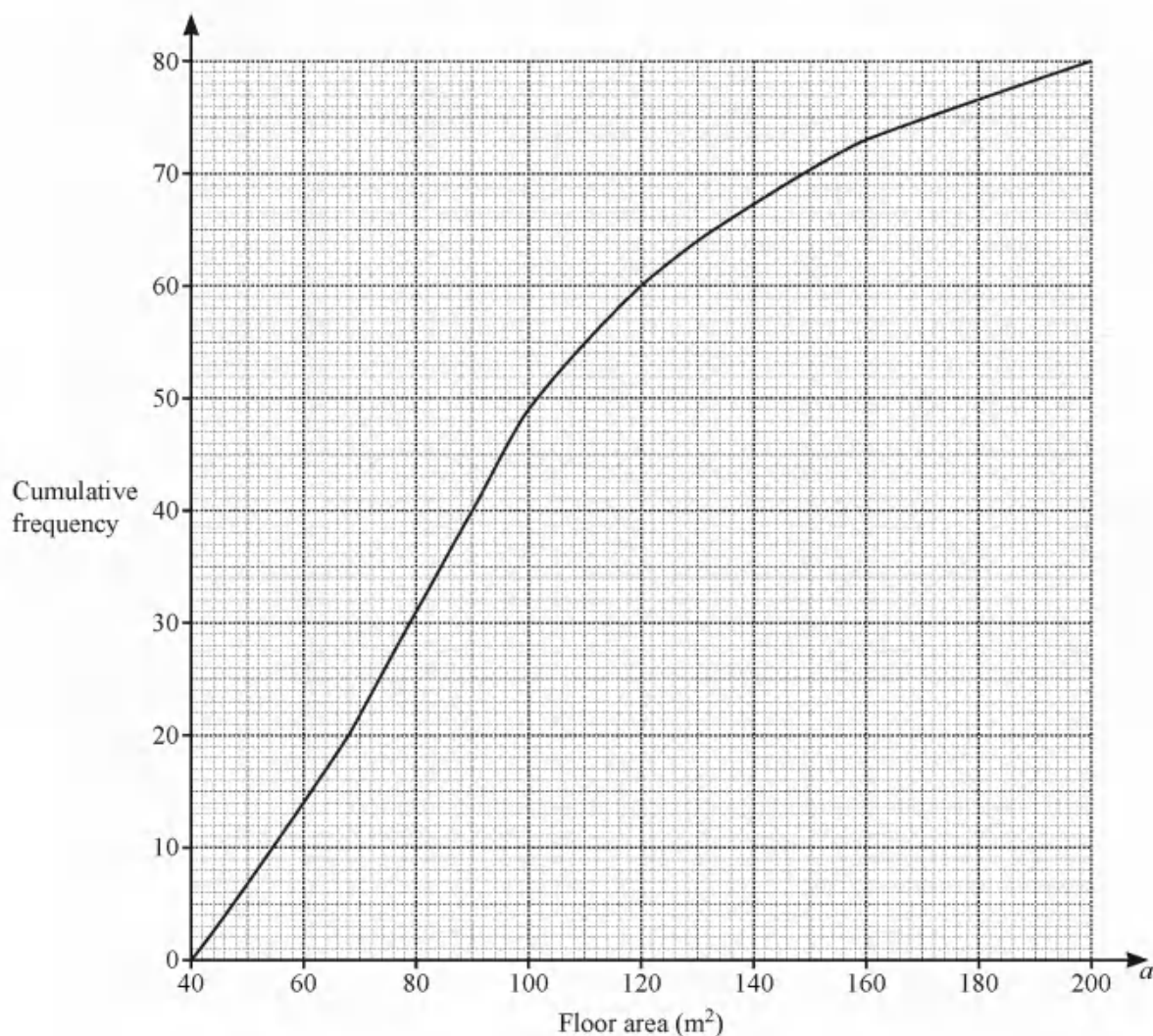
Find the probability that one of them has a mass greater than 80 kg and the other has a mass of 80 kg or less.

..... [3]



27 ■ (0580/42_Winter_2021_Q2) ■ Statistics

- (a) The cumulative frequency diagram shows information about the floor area, $a \text{ m}^2$, of each of 80 houses.



Use the diagram to find an estimate of

- (i) the median, ... m^2 [1]
- (ii) the lower quartile, ... m^2 [1]
- (iii) the interquartile range, ... m^2 [1]
- (iv) the number of houses with a floor area greater than 120 m^2 , ... [2]



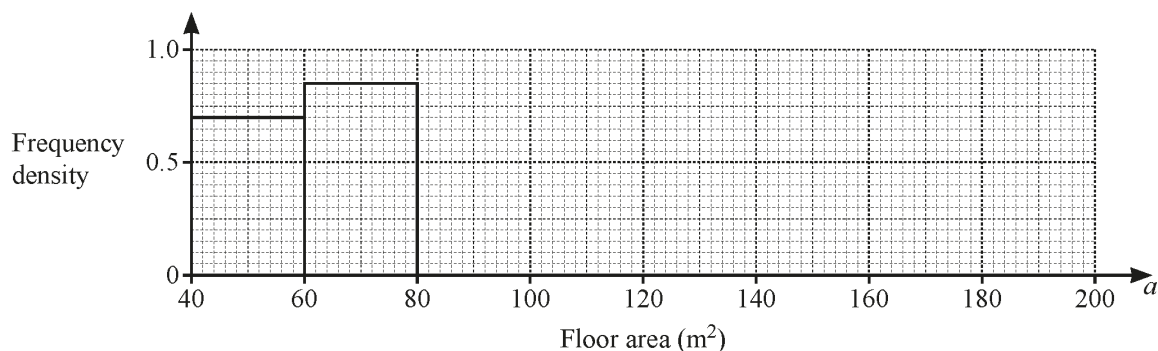
(b) The information about the 80 floor areas is shown in this frequency table.

Floor area ($a \text{ m}^2$)	$40 < a \leq 60$	$60 < a \leq 80$	$80 < a \leq 100$	$100 < a \leq 130$	$130 < a \leq 160$	$160 < a \leq 200$
Frequency	14	17	18	15	9	7

(i) Calculate an estimate of the mean floor area.

..... m^2 [4]

(ii) Complete the histogram to show the information in the frequency table.



[4]

(iii) Two of the houses are picked at random.

Find the probability that one of the houses has a floor area greater than 130 m^2 and the other has a floor area 60 m^2 or less.

..... [3]



31 - (0580/43_Summer_2022_Q5) - Statistics

The time, t minutes, taken by each of 80 people to travel to work is recorded.
The table shows information about these times.

Time (t minutes)	$0 < t \leq 5$	$5 < t \leq 10$	$10 < t \leq 20$	$20 < t \leq 35$	$35 < t \leq 60$
Frequency	3	7	18	28	24

- (a) (i) Write down the class interval containing the median time.

..... $< t \leq$ [1]

- (ii) Calculate an estimate of the mean time.

..... min [4]

- (b) (i) One of these 80 people is chosen at random.

Find the probability that this person took longer than 10 minutes to travel to work.
Give your answer as a fraction in its simplest form.

..... [2]

- (ii) Two people are chosen at random from those taking 20 minutes or less to travel to work.

Calculate the probability that one of these people took 5 minutes or less and the other took more than 5 minutes.

..... [3]

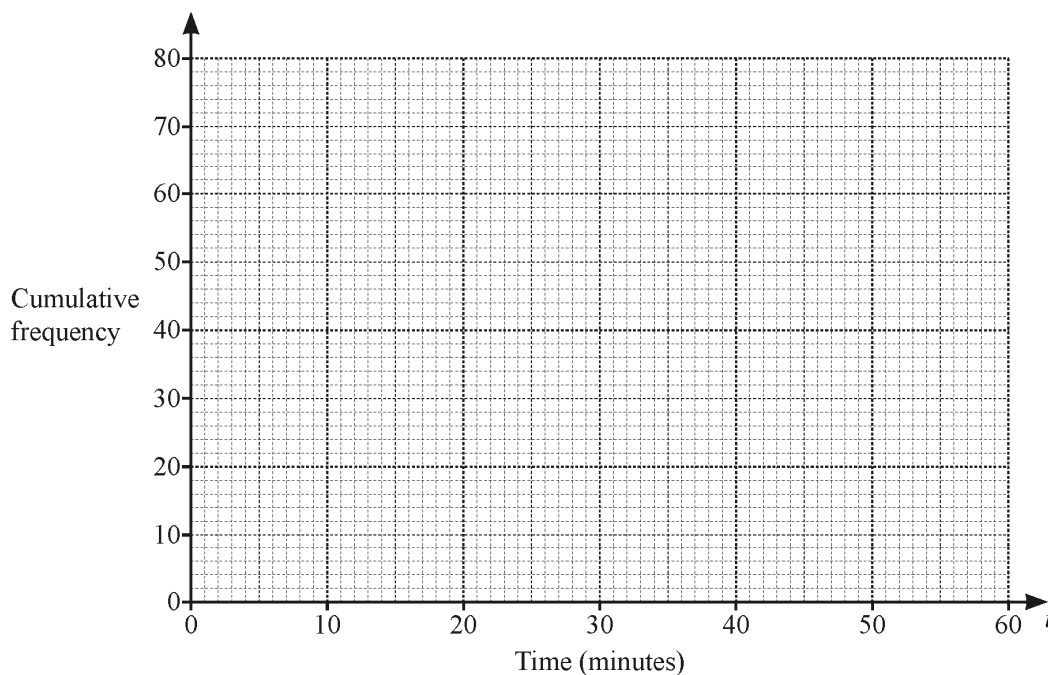


- (c) (i) Use the frequency table on page 8 to complete the cumulative frequency table.

Time (t minutes)	$t \leq 5$	$t \leq 10$	$t \leq 20$	$t \leq 35$	$t \leq 60$
Cumulative frequency	3	10			80

[1]

- (ii) On the grid, draw a cumulative frequency diagram to show this information.



[3]

- (iii) Find an estimate for the 80th percentile.

..... min [2]

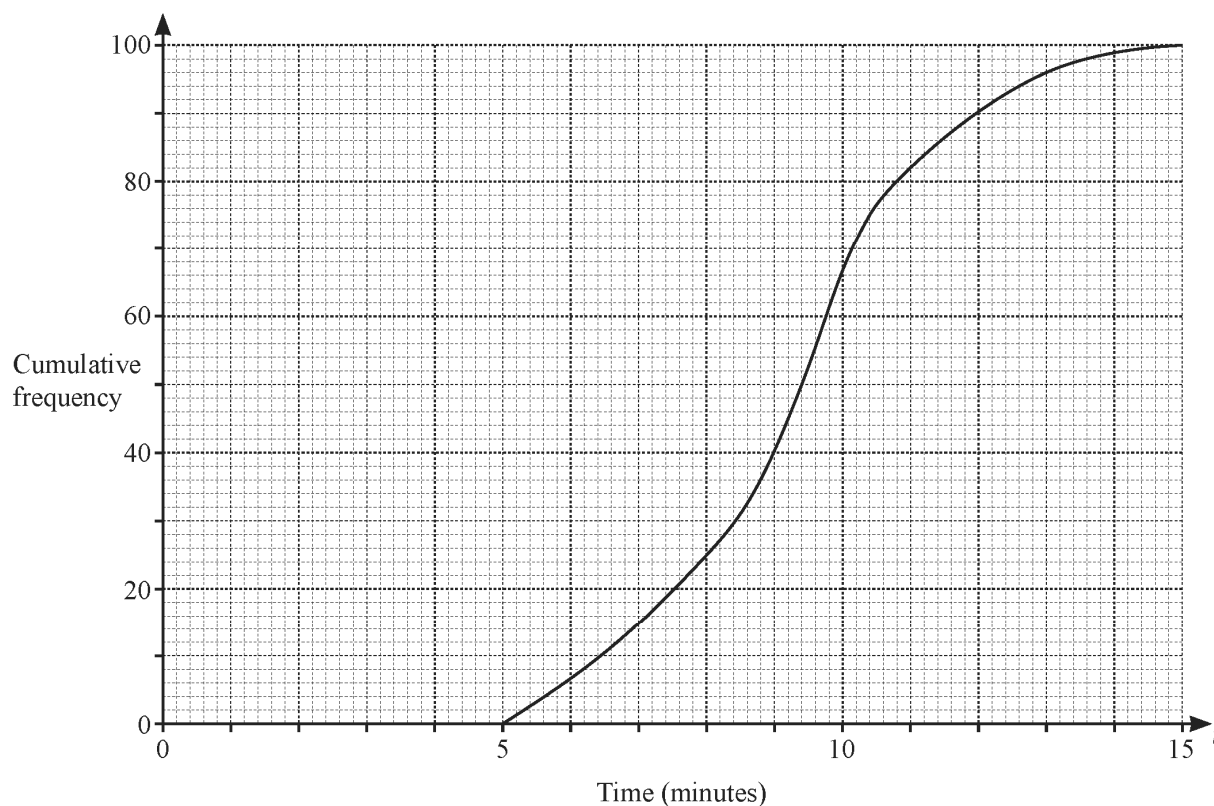
- (iv) Find an estimate for the percentage of people who took longer than 45 minutes to travel to work.
Show all your working.

..... % [3]



32 - (0580/41_Winter_2022_Q5) - Statistics

- (a) 100 students each record the time, t minutes, taken to eat a pizza.
The cumulative frequency diagram shows the results.



Find an estimate of

- (i) the median,

..... min [1]

- (ii) the interquartile range,

..... min [2]

- (iii) the number of students taking more than 11 minutes to eat a pizza.

..... [2]



- (b) 150 students each record how far they can throw a tennis ball.
The table shows the results.

Distance (d metres)	$0 < d \leq 20$	$20 < d \leq 30$	$30 < d \leq 35$	$35 < d \leq 45$	$45 < d \leq 60$
Frequency	4	38	40	53	15

- (i) Calculate an estimate of the mean.

..... m [4]

- (ii) A histogram is drawn to show this information.
The height of the bar representing $30 < d \leq 35$ is 12 cm.

Calculate the height of each of the other bars.

Distance (d metres)	Frequency	Height of bar (cm)
$0 < d \leq 20$	4	
$20 < d \leq 30$	38	
$30 < d \leq 35$	40	12
$35 < d \leq 45$	53	
$45 < d \leq 60$	15	

[3]

- (iii) Two students are chosen at random.

Find the probability that they both threw the ball more than 45 m.

..... [2]

