Cumulative Frequency Diagrams

SCAN ME

REVISE THIS TOPIC

CHECK YOUR ANSWERS

SCAN ME

1 The grouped frequency table gives information about the speeds S, in mph, of 60 cars on a road.

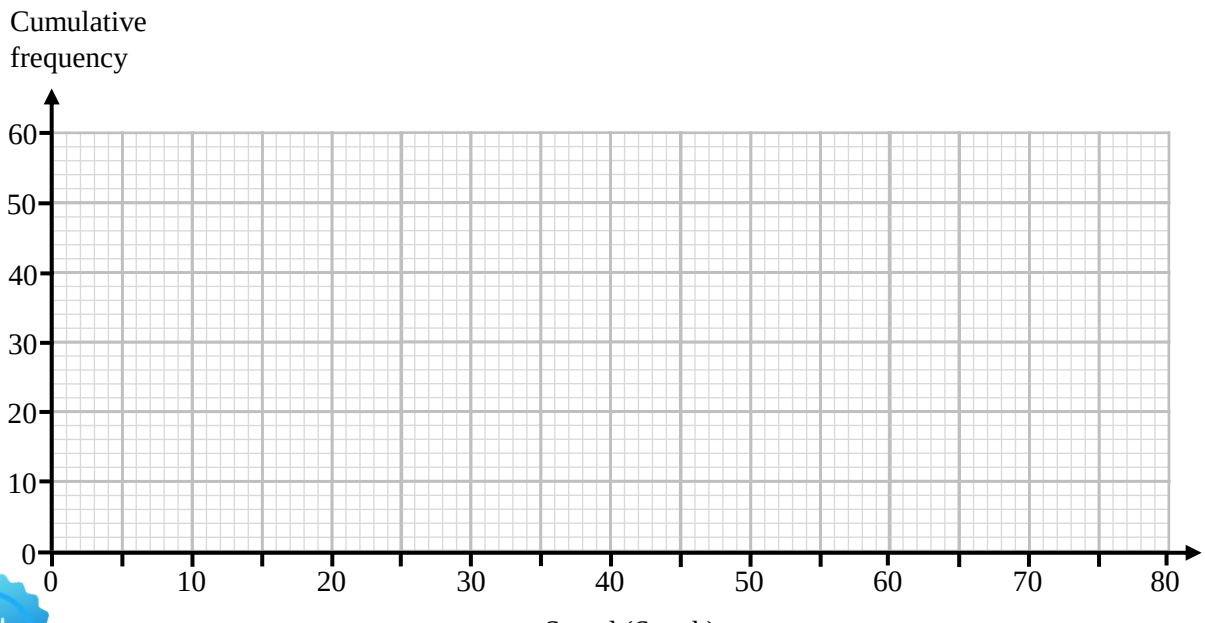
Speed, S, (mph)	Frequency
$0 < S \leq 20$	4
$20 < S \leq 40$	13
$40 < S \leq 60$	33
$60 < S \leq 80$	10

(a) Complete the cumulative frequency table.

Speed, S, (mph)	Cumulative Frequency
$0 < S \leq 20$	
$0 < S \leq 40$	
$0 < S \leq 60$	
$0 < S \leq 80$	

(1)

(b) On the grid, draw the cumulative frequency graph for this information.



(2)

(Total for Question 1 is 3 marks)

www.1stclassmaths.com © 1stclassmaths @1stclassmaths

2 The grouped frequency table gives information about the masses m, in kg, of 40 cows in a field.

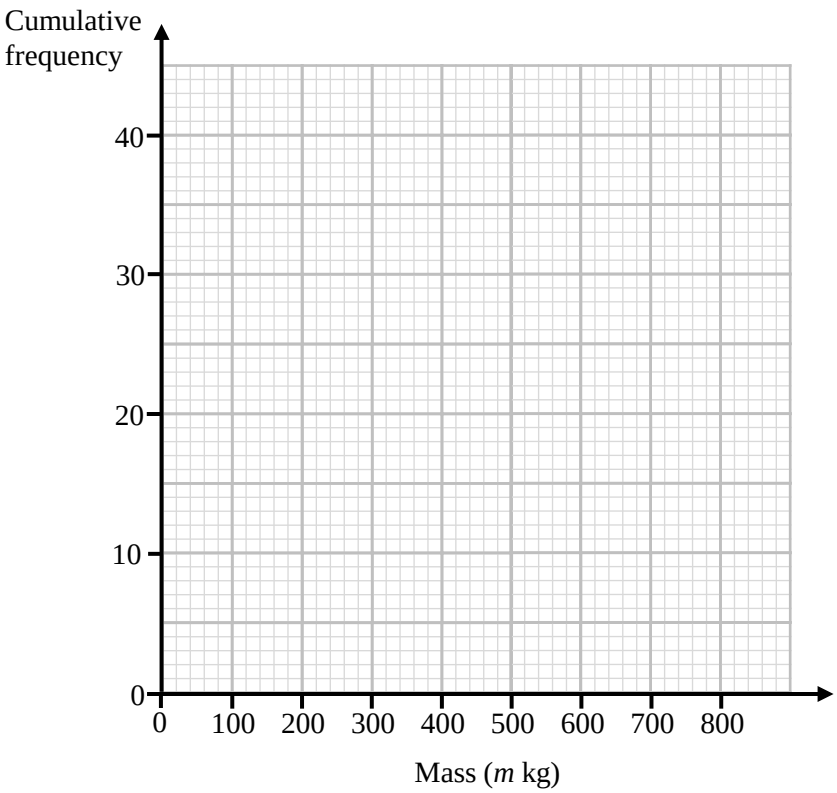
Mass, m, (kg)	Frequency
$0 < m \leq 200$	6
$200 < m \leq 400$	8
$400 < m \leq 600$	15
$600 < m \leq 800$	11

(a) Complete the cumulative frequency table.

Mass, m, (kg)	Cumulative Frequency
$0 < m \leq 200$	
$0 < m \leq 400$	
$0 < m \leq 600$	
$0 < m \leq 800$	

(1)

(b) On the grid, draw the cumulative frequency graph for this information.



(2)

www.1stclassmaths.com © 1stclassmaths Solutions

2 (c) Use your graph to find an estimate for the median mass of the 40 cows.

..... kg

(1)

(d) Use your graph to find an estimate for the interquartile range of the masses of the 40 cows.

..... kg

(2)

Cows that has a mass of less than 250 kg are considered small cows.

(e) Use your graph to find an estimate for the proportion of the cows in the field that are small cows.

.....

(2)

(Total for Question 2 is 8 marks)

www.1stclassmaths.com © 1stclassmaths Solutions

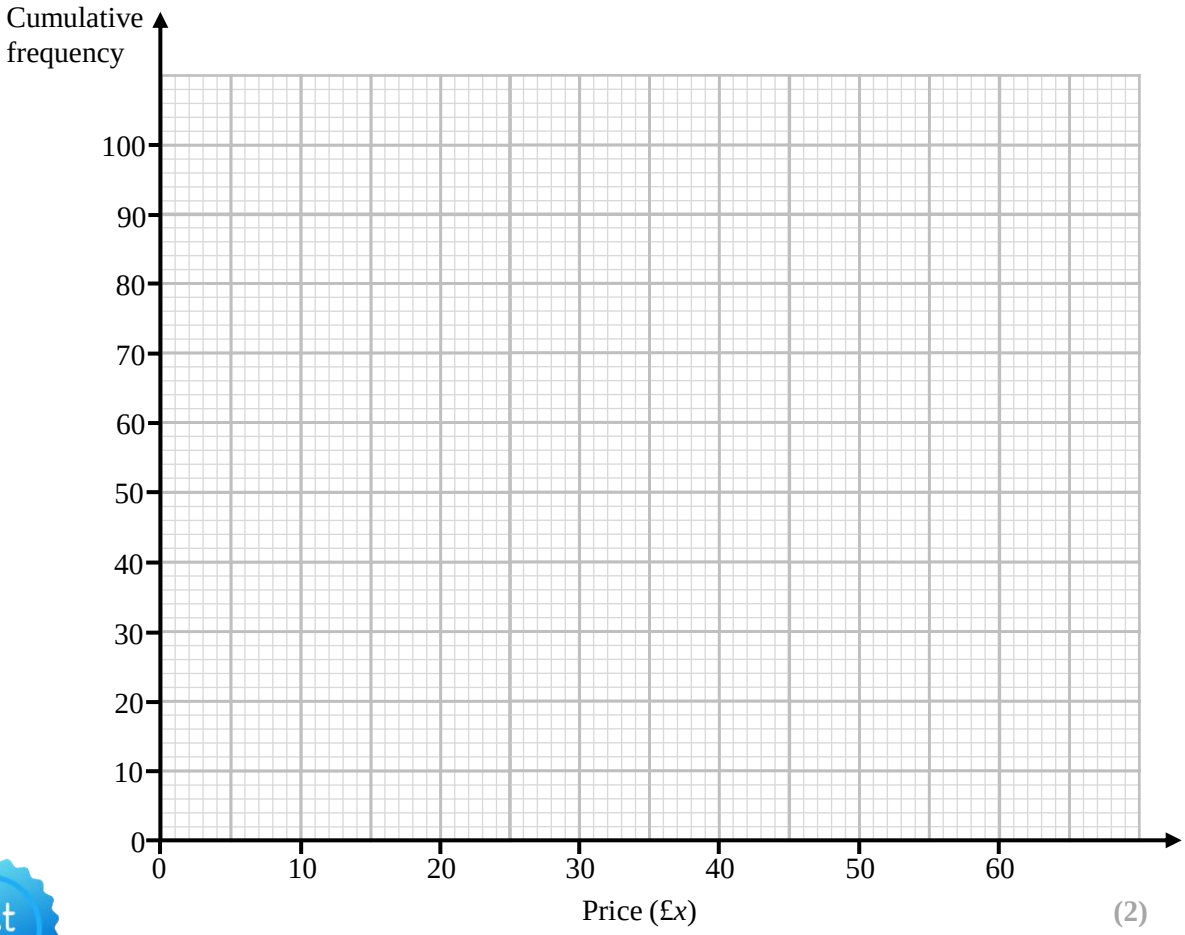
3 The grouped frequency table gives information about the prices of 100 items in a shop.

Price (£x)	Frequency
$0 \leq x < 10$	35
$10 \leq x < 20$	20
$20 \leq x < 30$	13
$30 \leq x < 40$	12
$40 \leq x < 50$	14
$50 \leq x < 60$	6

Price (£x)	Cumulative Frequency
$0 \leq x < 10$	
$0 \leq x < 20$	
$0 \leq x < 30$	
$0 \leq x < 40$	
$0 \leq x < 50$	
$0 \leq x < 60$	

(a) Complete the cumulative frequency table above. **(1)**

(b) On the grid, draw the cumulative frequency graph for this information.



(2)

© 1stclassmaths

Solutions

3 (c) Use your graph to find an estimate for the median price of the 100 items.

£ .....

(1)

(d) Use your graph to find an estimate for the interquartile range of the prices of the 100 items.

£ .....

(2)

Chris has £23.00
One of the 100 items is selected at random.

(e) Use your graph to find an estimate for the probability that Chris can afford to buy the item.

.....

(2)

(Total for Question 3 is 8 marks)

www.1stclassmaths.com © 1stclassmaths Solutions

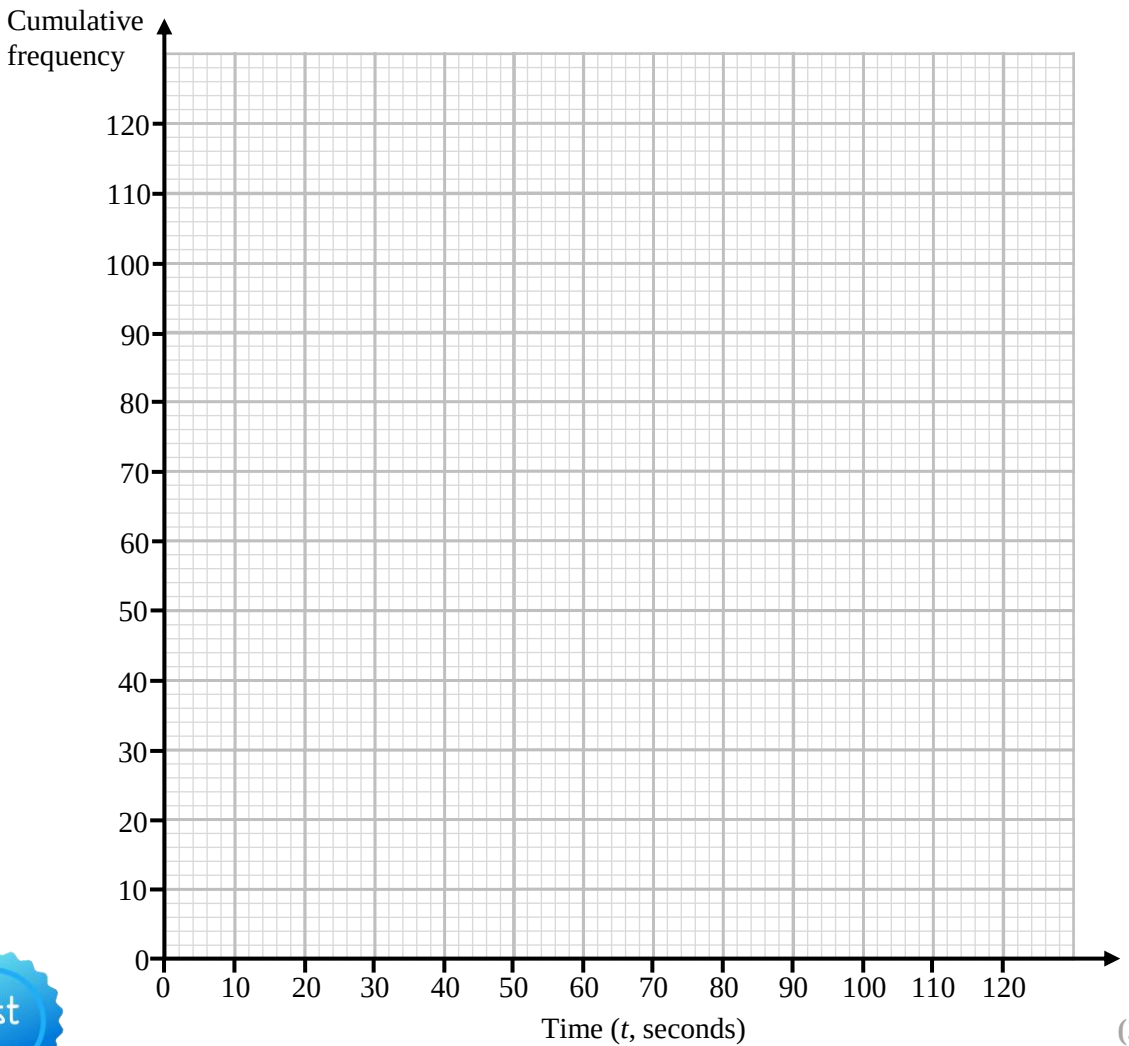
4 The grouped frequency table gives information about the times, in seconds, 120 people took to solve a maths problem.

Time (t, seconds)	Frequency
$0 < t \leq 20$	8
$20 < t \leq 40$	24
$40 < t \leq 60$	33
$60 < t \leq 80$	30
$80 < t \leq 100$	19
$100 < t \leq 120$	6

Time (t, seconds)	Cumulative Frequency
$0 < t \leq 20$	
$0 < t \leq 40$	
$0 < t \leq 60$	
$0 < t \leq 80$	
$0 < t \leq 100$	
$0 < t \leq 120$	

(a) Complete the cumulative frequency table above. **(1)**

(b) On the grid, draw the cumulative frequency graph for this information.



(2)

© 1stclassmaths

Solutions

4 (c) Use your graph to find an estimate for the median time taken to solve the maths problem.

.....seconds

(1)

(d) Use your graph to find an estimate for the interquartile range of the times taken to solve the maths problem.

.....seconds

(2)

Everyone who solved the problem in less than 25 seconds wins a prize.

(e) Use your graph to find an estimate for the percentage of people what won a prize.

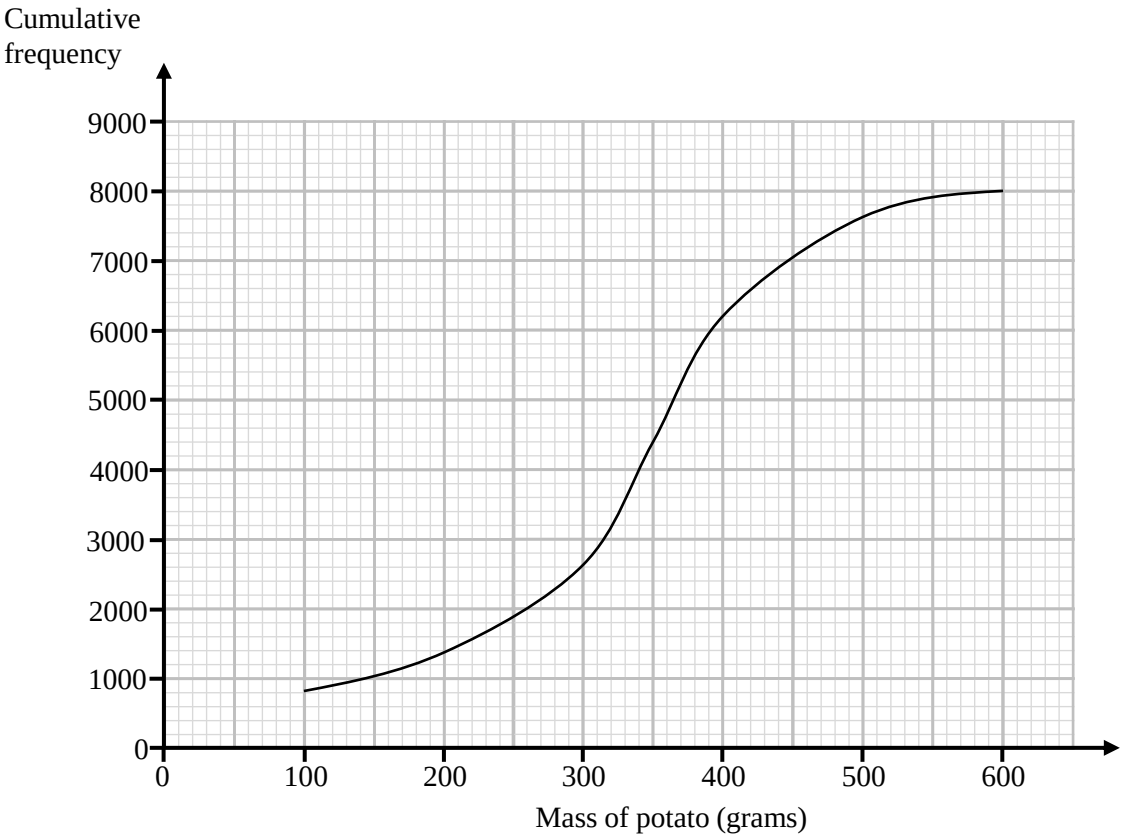
.....%

(2)

(Total for Question 4 is 8 marks)

www.1stclassmaths.com © 1stclassmaths Solutions

5 The cumulative frequency graph shows some information about the masses, in grams, of the potatoes that a farmer harvests.



(a) Use the graph to find an estimate for the median mass of the potatoes.

..... grams

(1)

The farmer can only sell potatoes that have a mass of between 240 g and 500g.

(b) Use the graph to work out an estimate for the number of potatoes from the harvest that the farmer can sell.

..... potatoes

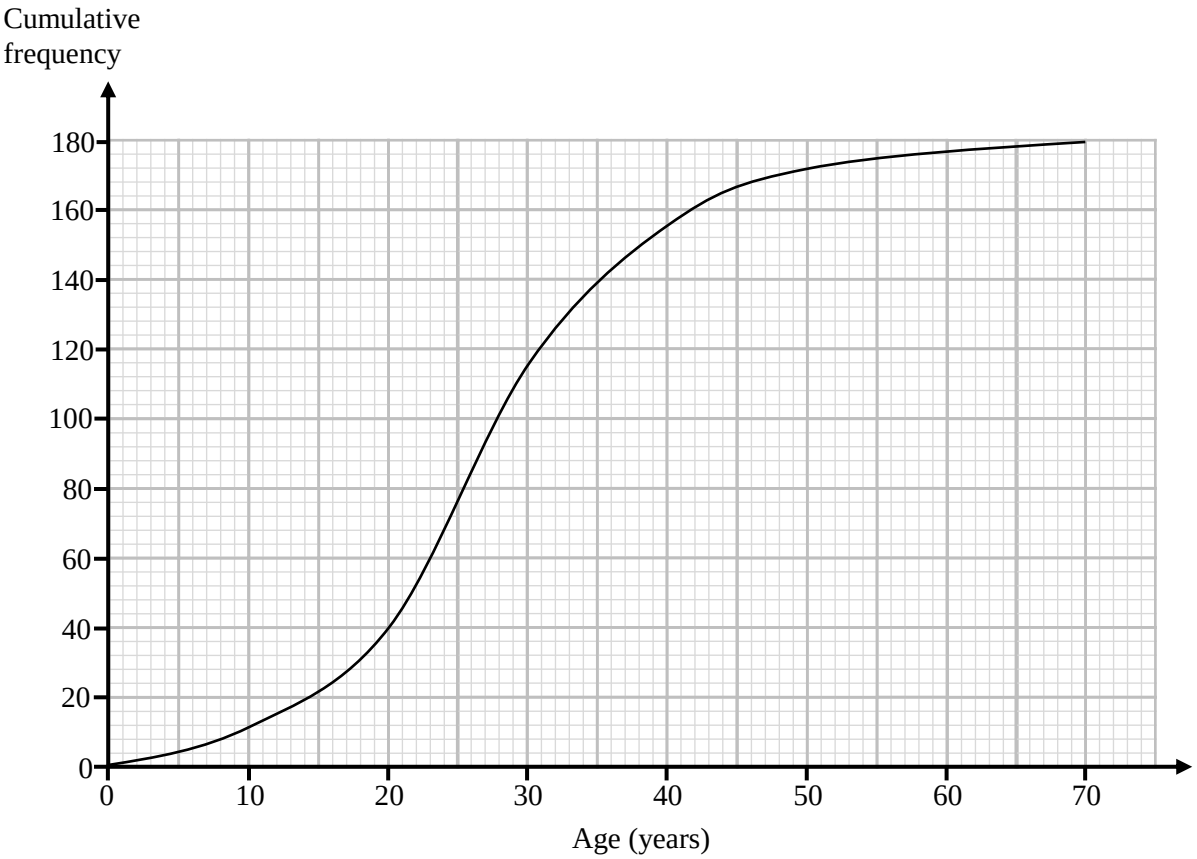
(2)

(Total for Question 5 is 3 marks)

© 1stclassmaths

Solutions

6 The cumulative frequency graph shows some information about the ages, in years of 180 people attending a cinema to watch a film.



The prices of different tickets are shown in the table below.

Child (18 years and under)	**General Ticket**	**Senior (60 years and over)**
£6.50	£9.50	£7.50

Use the graph to work out an estimate for the total amount of money the cinema receives in ticket sales for the showing of this film.

£.....

(Total for Question 6 is 4 marks)

© 1stclassmaths

Solutions

7 Peter throws the javelin 48 times and records the distances.
The grouped frequency table gives information about the distances d, in metres of his 48 throws.

Distance, d, (m)	Frequency
$0 < d \leq 15$	a
$15 < d \leq 30$	b
$30 < d \leq 45$	c
$45 < d \leq 60$	d

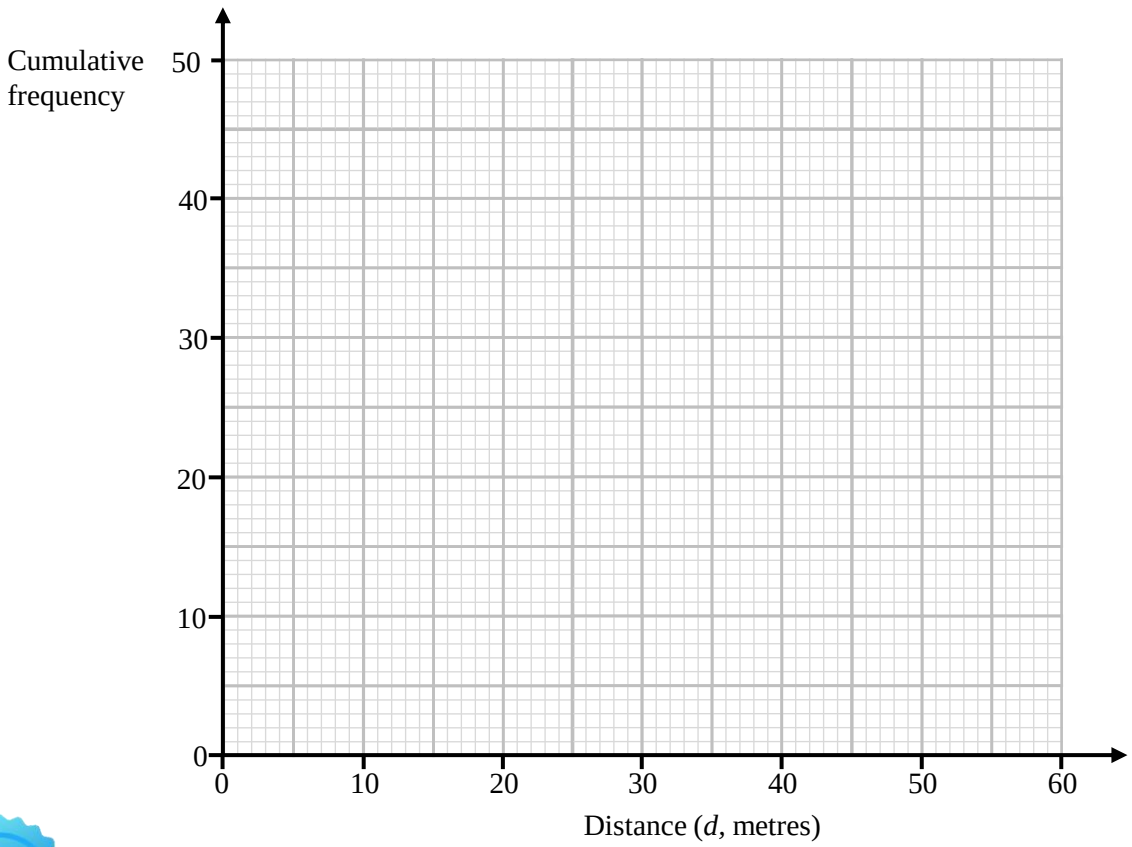
$a : b : c : d = 1 : 2 : 5 : 4$

(a) Complete the cumulative frequency table.

Distance, d, (m)	Cumulative Frequency
$0 < d \leq 15$	
$0 < d \leq 30$	
$0 < d \leq 45$	
$0 < d \leq 60$	

(3)

(b) On the grid, draw the cumulative frequency graph for this information.

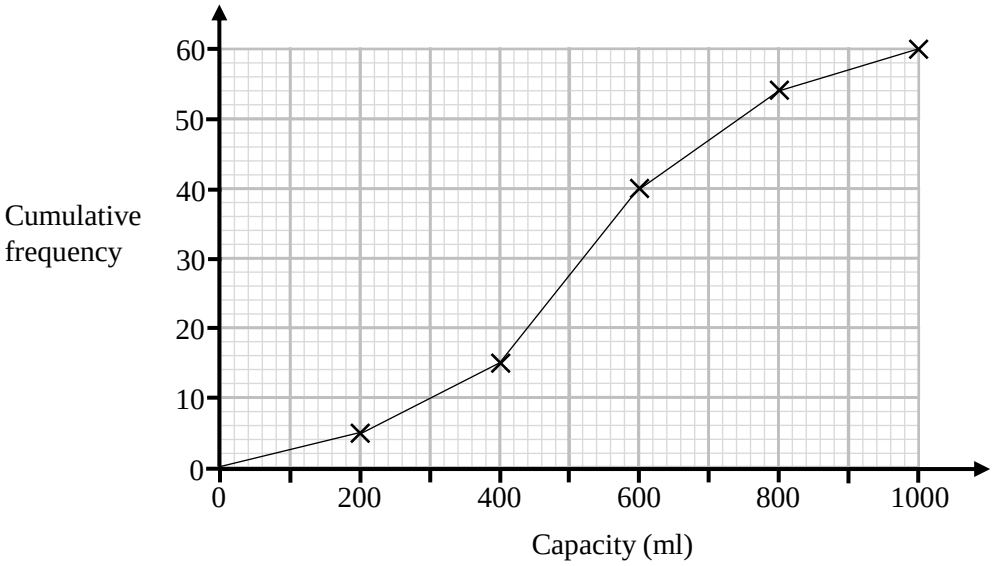


(2)

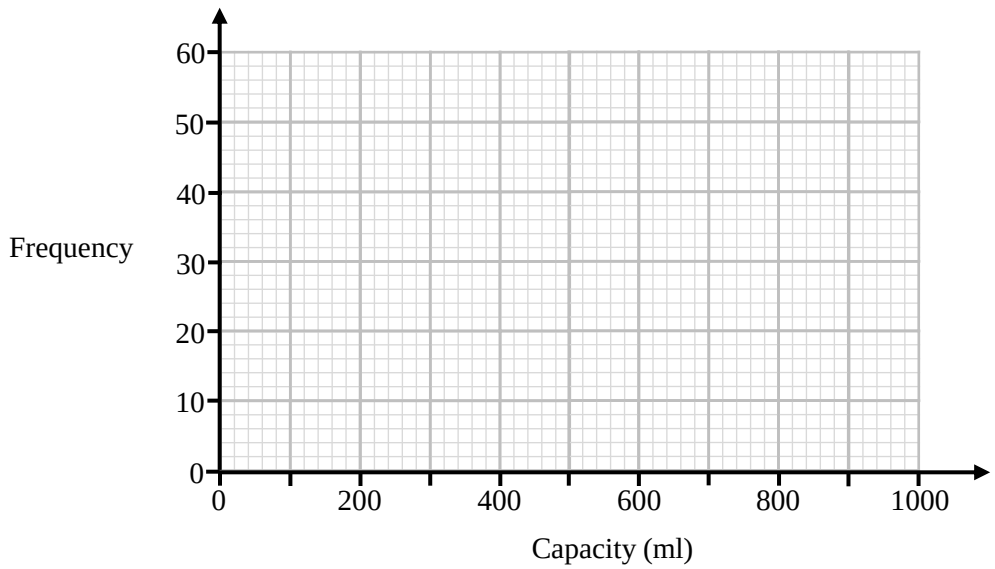
(Total for Question 7 is 5 marks)

www.1stclassmaths.com © 1stclassmaths Solutions

8 Emma collects data on the capacities of 60 different containers.
She draws a cumulative frequency diagram for the data shown below.



On the grid below, draw a frequency polygon for the capacities of the 60 containers.



(Total for Question 8 is 3 marks)

© 1stclassmaths
Solutions