12 Larry is a delivery man.

He has 7 parcels to deliver.
The mean weight of the 7 parcels is 2.7 kg

Larry delivers 3 of the parcels.
Each of these 3 parcels has a weight of W kg

The mean weight of the other 4 parcels is 3.3 kg

Work out the value of W

$W =$ .....

(Total for Question 12 is 3 marks)

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13 The table gives information about the ages, in years, of 80 people in a train carriage.

Age (a years)	Frequency
$0 < a \leqslant 20$	7
$20 < a \leqslant 30$	25
$30 < a \leqslant 40$	20
$40 < a \leqslant 50$	14
$50 < a \leqslant 60$	8
$60 < a \leqslant 70$	6

(a) Complete the cumulative frequency table.

Age (a years)	Cumulative frequency
$0 < a \leqslant 20$	
$0 < a \leqslant 30$	
$0 < a \leqslant 40$	
$0 < a \leqslant 50$	
$0 < a \leqslant 60$	
$0 < a \leqslant 70$	

(1)

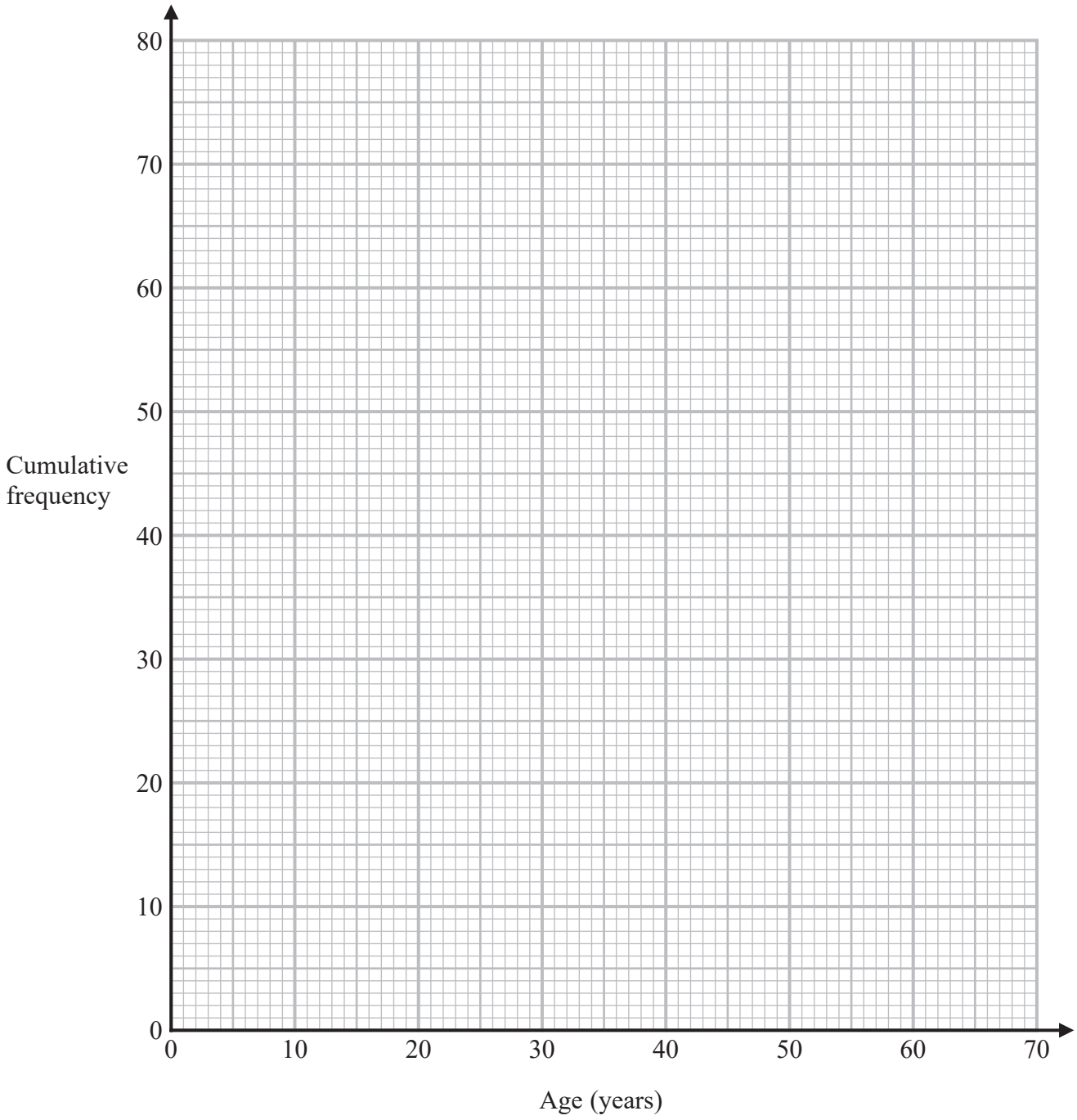
(b) On the grid opposite, draw a cumulative frequency graph for your table.

(2)

(c) Use your graph to find an estimate for the median age of the 80 people.

..... years

(1)



Of the people in the train carriage, 60% of those who are aged between 18 and 65 are going to work. None of the other people in the train carriage are going to work.

(d) Use your graph to find an estimate for the number of people in the train carriage who are going to work.

.....

(3)

(Total for Question 13 is 7 marks)

14 (a) Expand and simplify $(5 - x)(2x + 3)(x + 4)$
Show your working clearly.

.....

(3)

(b) Make c the subject of $g = \dfrac{c + 3}{4 + c} - 7$

.....

(4)

(Total for Question 14 is 7 marks)

15 (a) Solve $\frac{4x + 5}{3} - \frac{3 - 2x}{2} = 13$

Show clear algebraic working.

$x =$ .....

(4)

(b) Solve the inequality $2y^2 - 7y - 30 \leqslant 0$

Show your working clearly.

.....

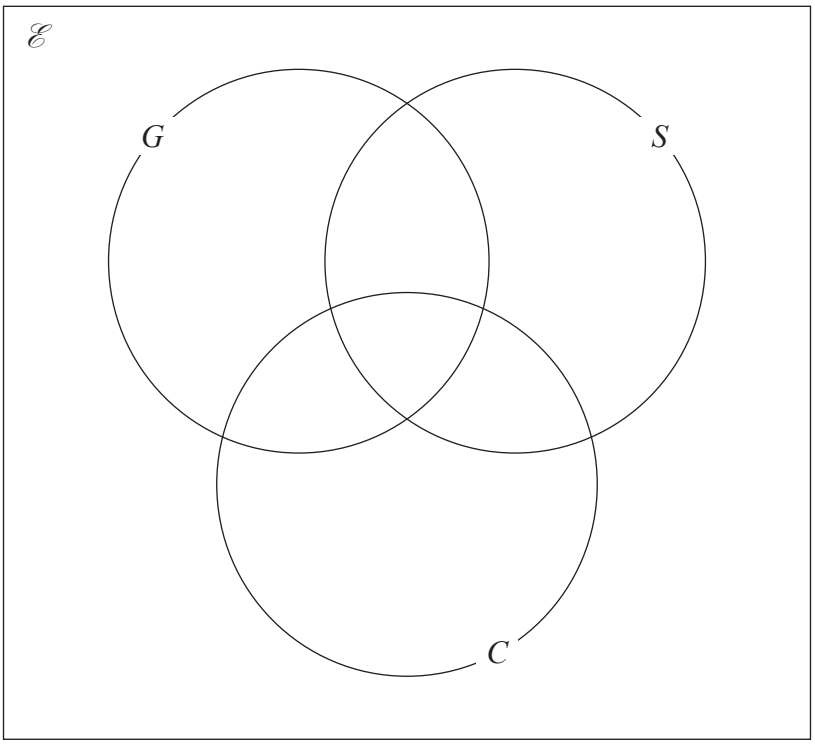
(3)

(Total for Question 15 is 7 marks)

16 100 farmers are asked if they have goats (G), sheep (S) or chickens (C) on their farms.

Of these farmers
- 31 have sheep
- 53 have chickens
- 6 have goats, sheep and chickens
- 11 have sheep and goats
- 17 have sheep and chickens
- 18 have goats and chickens
- 20 do not have any goats, sheep or chickens

(a) Using this information, complete the Venn diagram to show the number of farmers in each appropriate subset.



(3)

(b) Find

(i) n(G)

.....

(1)

(ii) n($[G \cup S]'$)

.....

(1)

(iii) n($G' \cap C$)

.....

(1)

One of the farmers who has chickens is chosen at random.

(c) Find the probability that this farmer also has goats.

.....

(2)

(Total for Question 16 is 8 marks)

17 M varies directly as the cube of h
$M = 4$ when $h = 0.5$

Find the value of h when $M = 500$

.....

(Total for Question 17 is 4 marks)