

1 There is a total of 45 boys and girls in a choir.

The mean age of the 18 boys is 16.2 years. The mean age of the 27 girls is 16.7 years.

Calculate the mean age of all 45 boys and girls.

$$\begin{aligned} \text{Total age of boys} &= 18 \times 16.2 \text{ years} \\ &= 291.6 \text{ years} \end{aligned}$$

$$\begin{aligned} \text{Total age of girls} &= 27 \times 16.7 \text{ years} \\ &= 450.9 \text{ years} \end{aligned}$$

$$\begin{aligned} \text{Total age of boys and girls} &= 291.6 \text{ years} + 450.9 \text{ years} \\ &= 742.5 \text{ years} \quad (1) \end{aligned}$$

$$\begin{aligned} \text{Mean of boys and girls} &= \frac{742.5 \text{ years}}{45} \quad (1) \\ &= 16.5 \text{ years} \end{aligned}$$

$= 16.5 \#$ (Total for Question 1 is 3 marks)

(1)

$$\begin{aligned} \text{mean age of boys and girls} &= \frac{\text{Total age of boys and girls}}{\text{Total number of boys and girls}} \end{aligned}$$

- 2 The table shows the amount of snow, in cm, that fell each day for 30 days.

Amount of snow (s cm)	Frequency
$0 \leq s < 10$	8
$10 \leq s < 20$	10
$20 \leq s < 30$	7
$30 \leq s < 40$	2
$40 \leq s < 50$	3

Work out an estimate for the mean amount of snow per day.

frequency \times midpoint ✓ ①

$$8 \times 5 + 10 \times 15 + 7 \times 25 + 2 \times 35 + 3 \times 45$$

$$40 + 150 + 175 + 70 + 135$$

$$= 570 \quad \checkmark \text{ ①}$$

$$570 \div 30 \text{ days} = 19 \text{ mean} \quad \checkmark \text{ ①}$$

..... 19 cm

(Total for Question 2 is 3 marks)

- 3 There are 30 women and 20 men at a gym.

The mean height of all 50 people is 167.6 cm

The mean height of the 20 men is 182 cm

Work out the mean height of the 30 women.

$$\begin{aligned} \text{Total of heights of all people} \\ = 50 \times 167.6 = 8380 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Total of heights of all men} \\ = 20 \times 182 = 3640 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Total height of all women} \\ = 8380 - 3640 = 4740 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{mean height of the 30 women} \\ = \frac{4740}{30} = 158 \text{ cm} \end{aligned}$$

..... 158 cm

(Total for Question 3 is 3 marks)

- 4 The cumulative frequency table gives information about the ages of 80 people working for a company.

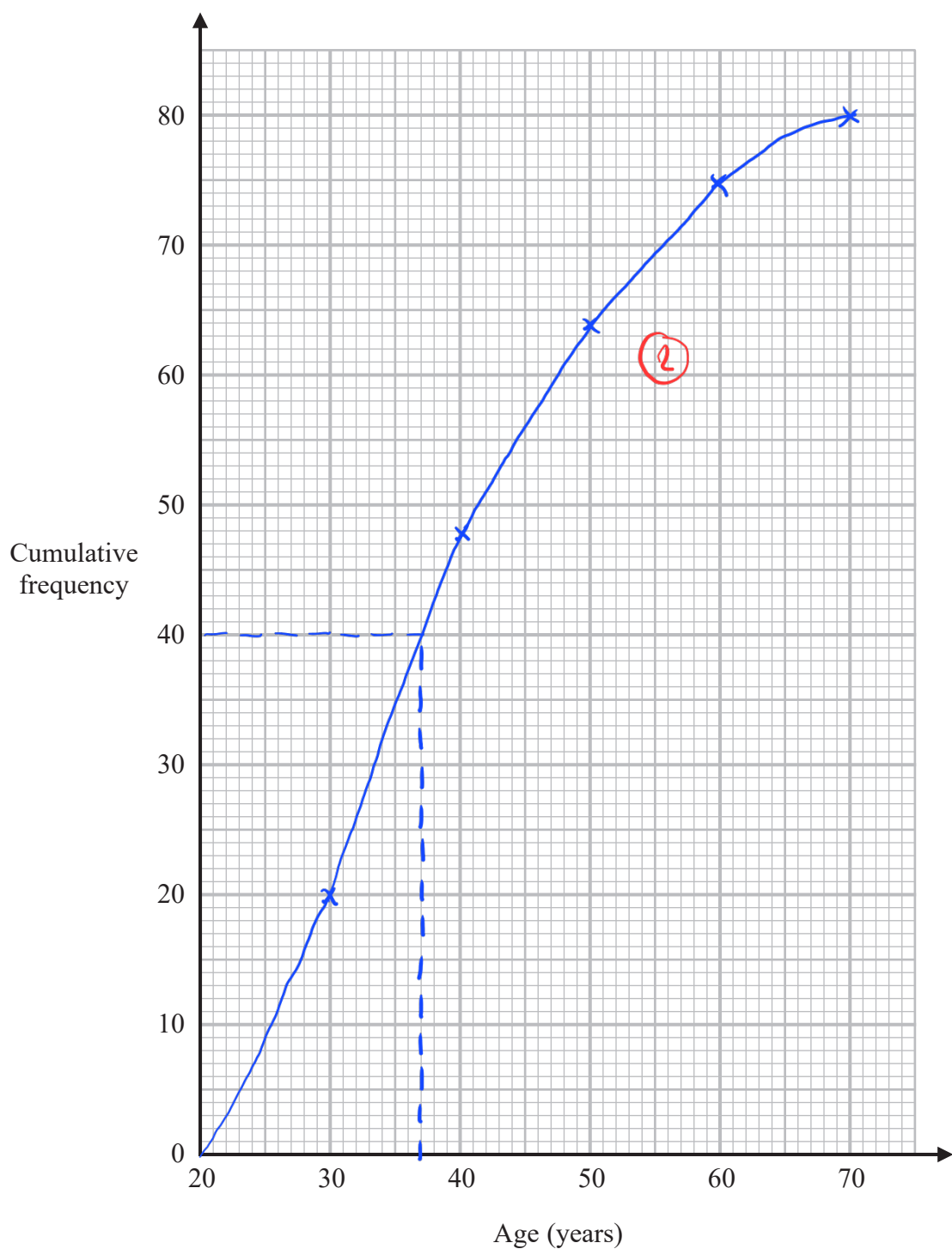
Age (a years)	Cumulative frequency
$20 < a \leq 30$	20
$20 < a \leq 40$	48
$20 < a \leq 50$	64
$20 < a \leq 60$	75
$20 < a \leq 70$	80

- (a) On the grid opposite, draw a cumulative frequency graph for this information.

(2)

- (b) Use your graph to find an estimate for the median age.

..... 37 ^① years
(1)



(Total for Question 4 is 3 marks)