**13** Bob asked each of 40 friends how many minutes they took to get to work.

The table shows some information about his results.

| Time taken ($m$ minutes) | midpoint | | Frequency | |
|---|---|---|---|---|
| $0 < m \leqslant 10$ | 5 | × | 3 | = 15 |
| $10 < m \leqslant 20$ | 15 | × | 8 | = 120 |
| $20 < m \leqslant 30$ | 25 | × | 11 | = 275 |
| $30 < m \leqslant 40$ | 35 | × | 9 | = 315 |
| $40 < m \leqslant 50$ | 45 | × | 9 | = 405 |

+ add

1130

Work out an estimate for the mean time taken.

$$\frac{1130}{40} = 28.25 \text{ minutes.}$$

7 The table shows information about the number of hours that 120 children used a computer last week.

① Find Midpoints

| Number of hours | Frequency | | |
|---|---|---|---|
| $0 < h \leqslant 2$ | 1 × 10 | = | 10 |
| $2 < h \leqslant 4$ | 3 × 15 | = | 45 |
| $4 < h \leqslant 6$ | 5 × 30 | = | 150 |
| $6 < h \leqslant 8$ | 7 × 35 | = | 245 |
| $8 < h \leqslant 10$ | 9 × 25 | = | 225 |
| $10 < h \leqslant 12$ | 11 × 5 | + = | 55 add |
| | | | 730 |

Work out an estimate for the mean number of hours that the children used a computer.
Give your answer to 2 decimal places.

(4)

$$\frac{730}{120} = 6.083$$

2DP

6.08 hours.

Leave blank

8. Bill recorded the times, in minutes, taken to complete his last 40 homeworks.

This table shows information about the times.

| Time ($t$ minutes) | Midpoint | | Frequency | |
|---|---|---|---|---|
| $20 \leqslant t < 25$ | 22.5 | × | 8 | 180 |
| $25 \leqslant t < 30$ | 27.5 | × | 3 | 82.5 |
| $30 \leqslant t < 35$ | 32.5 | × | 7 | 227.5 |
| $35 \leqslant t < 40$ | 37.5 | × | 7 | 262.5 |
| $40 \leqslant t < 45$ | 42.5 | × | 15 | + 637.5 |
| | | | | 1390 |

(a) Find the class interval in which the median lies.

Find where the 20th frequency lies.

$35 \leqslant t < 40$.

~~$30 \leqslant t \leqslant 35$~~

**(1)**

(b) Calculate an estimate of the mean time it took Bill to complete each homework.

$$\frac{1390}{40} = 34.75 \text{ Minutes.}$$

Leave blank

**20.** The table gives some information about the time taken by a group of 100 students to complete an IQ test.

| Time ($t$ seconds) | | Frequency | |
|---|---|---|---|
| $60 < t \leqslant 70$ | 65 | 12 | $65 \times 12 = 780$ |
| $70 < t \leqslant 80$ | 75 | 22 | $75 \times 22 = 1650$ |
| $80 < t \leqslant 90$ | 85 | 23 | $85 \times 23 = 1955$ |
| $90 < t \leqslant 100$ | 95 | 24 | $95 \times 24 = 2280$ |
| $100 < t \leqslant 110$ | 105 | 19 | $105 \times 19 = 1995$ |
| | | | $+ \quad 8660$ |

(a) Write down the modal class interval.

look for highest frequency.

$90 < t \leqslant 100$

**(1)**

(b) Calculate an estimate for the mean time taken by the students.

$$\frac{8660}{100} = 86.60$$

AT

Leave blank

**12.** Sethina recorded the times, in minutes, taken to repair 80 car tyres.
Information about these times is shown in the table.

| Time ($t$ minutes) | | Frequency | | |
|---|---|---|---|---|
| $0 < t \leqslant 6$ | 3 | 15 | $3 \times 15$ | 45 |
| $6 < t \leqslant 12$ | 9 | 25 | $9 \times 25$ | 225 |
| $12 < t \leqslant 18$ | 15 | 20 | $15 \times 20$ | 300 |
| $18 < t \leqslant 24$ | 21 | 12 | $21 \times 12$ | 252 |
| $24 < t \leqslant 30$ | 27 | 8 | $27 \times 8$ | $+216$. |
| | | | | 1038 |

Calculate an estimate for the mean time taken to repair each car tyre.

$$\frac{1038}{80} = 12.975$$

$\therefore$ 12.98 minutes.

**14.** The table gives information about the number of CDs sold in a shop during each of the last 30 weeks.

| Number of CDs ($n$) | | Frequency | | |
|---|---|---|---|---|
| $0 < n \leqslant 40$ | 20 | 3 | $20 \times 3$ | 60 |
| $40 < n \leqslant 80$ | 60 | 5 | $60 \times 5$ | 300 |
| $80 < n \leqslant 120$ | 100 | 12 | $100 \times 12$ | 1200 |
| $120 < n \leqslant 160$ | 140 | 7 | $140 \times 7$ | 980 |
| $160 < n \leqslant 200$ | 180 | 3 | $180 \times 3$. | + 540. add. |
| | | | | 3080. |

Calculate an estimate for the mean number of CDs sold each week.
Give your answer correct to 1 decimal place.

$$\frac{3080}{30} = 102.666\ldots$$

$$= 102.7$$

11. Bianca asked 32 women about the number of children they each had.

The table shows information about her results.

| Number of children | Frequency | |
|---|---|---|
| 0 | 9 | 0 |
| 1 | 6 | 6 |
| 2 | 7 | 14 |
| 3 | 8 | 24 |
| 4 | 2 | 8 |
| more than 4 | 0 | 0 |
| | | + add. |
| | | 52 |

(a) Find the mode.

0

(1)

(b) Calculate the mean.

$\frac{52}{32} = 1.625$.

$= 1.6$ M.

**10.** Caleb measured the heights of 30 plants.

The table gives some information about the heights, $h$ cm, of the plants.

| Height ($h$ cm) of plants | Frequency | | |
|---|---|---|---|
| $0 < h \leqslant 10$ | 2 | 5 × 2 | 10 |
| $10 < h \leqslant 20$ | 8 | 15 × 8 | 120 |
| $20 < h \leqslant 30$ | 9 | 25 × 9 | 225 |
| $30 < h \leqslant 40$ | 7 | 35 × 7 | 245 |
| $40 < h \leqslant 50$ | 4 | 45 × 4. | + 180. add. |
| | | | 780. |

Work out an estimate for the mean height of a plant.

$\frac{780}{30} = 26$ cm ~~plants~~.

Leave blank

**17.** Majid carried out a survey of the number of school dinners 32 students had in one week.

The table shows this information.

| Number of school dinners | | Frequency | |
|---|---|---|---|
| 0 | × | 0 | 0 |
| 1 | × | 8 | 8 |
| 2 | × | 12 | 24 |
| 3 | × | 6 | 18 |
| 4 | × | 4 | 16 |
| 5 | × | 2 | + 10 |
| | | | 76. |

add

Calculate the mean.

This is not grouped data.
∴ No mid points.
So just multiply!

$$\frac{76}{32} = 2.375 \text{ dinners.}$$

2.38.

Q17

(Total 3 marks)

**18.** The table shows some information about the heights ($h$ cm) of 100 students.

| Height ($h$ cm) | | Frequency | | |
|---|---|---|---|---|
| $120 \leqslant h < 130$ | 125 | 8 | $125 \times 8$ | 1000 |
| $130 \leqslant h < 140$ | 135 | 16 | $135 \times 16$ | 2160 |
| $140 \leqslant h < 150$ | 145 | 25 | $145 \times 25$ | 3625 |
| $150 \leqslant h < 160$ | 155 | 30 | $155 \times 30$ | 4650 |
| $160 \leqslant h < 170$ | 165 | 21 | $165 \times 21$. | 3465. |
| | | | + add. | |
| | | | | 14900 |

(a) Find the class interval in which the median lies.

Find where the 50th Student lies.

$150 \leq h < 160$

**(1)**

(b) Work out an estimate for the mean height of the students.

$\frac{14900}{100}$ ∴ 149 cm

**10.** The temperature ($T$ °C) at noon at a seaside resort was recorded for a period of 60 days. The table shows some of this information.

| Temperature ($T$ °C) | Number of days |
|---|---|
| $10 < T \leq 14$ | |
| $14 < T \leq 18$ | |
| $18 < T \leq 22$ | |
| $22 < T \leq 26$ | |
| $26 < T \leq 30$ | |
| $30 < T \leq 34$ | |

12 × 2 = 24
16 × 8 = 128
20 × 14 = 280
24 × 23 = 552
28 × 9 = 252
32 × 4 = 128 add.
1364.

Calculate an estimate for the mean temperature at noon during these 60 days.
Give your answer correct to 3 significant figures.

$$\frac{1364}{60} = 22.733\ldots$$

$$\therefore 22.7\ ^{\circ}C$$