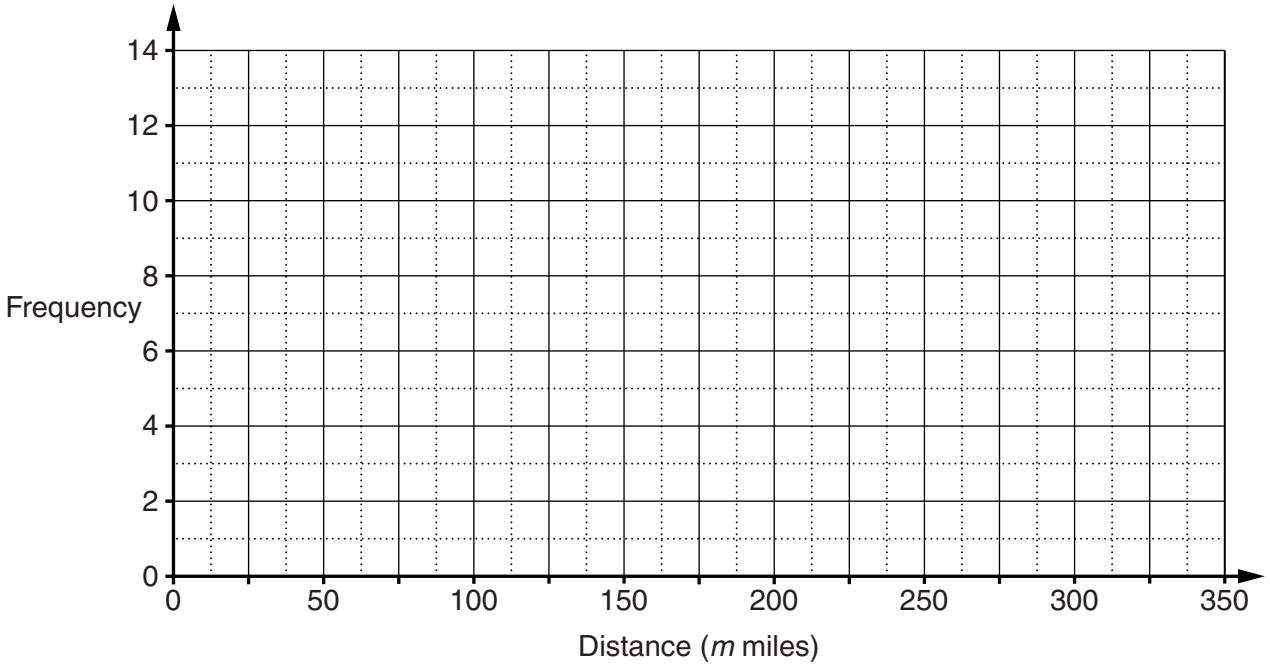
1 Mukulika asked 50 drivers how many miles they had travelled that day.
This table summarises their responses.

Distance (m miles)	Frequency
$0 < m \leqslant 50$	7
$50 < m \leqslant 100$	10
$100 < m \leqslant 150$	14
$150 < m \leqslant 200$	9
$200 < m \leqslant 250$	5
$250 < m \leqslant 300$	3
$300 < m \leqslant 350$	2

(a) Draw a frequency polygon to represent this information.



[3]

(b) Calculate an estimate of the mean distance travelled.

(b) _____ miles **[4]**

2 **(a)** Form 11T had 30 students.
Sasha asked each of the students how many items they had downloaded the previous day.
This table summarises their responses.

Number of downloads	Frequency
0	4
1 – 5	2
6 – 10	8
11 – 15	7
16 – 20	6
21 – 25	2
26 – 30	1

(i) Write down the modal class.

(a)(i) ..... **[1]**

(ii) Calculate an estimate of the mean number of downloads.

(ii) ..... **[4]**

(b) Sasha decides to ask a random sample from the whole school how many items they had downloaded the previous day.
This sample is to be representative of the different year groups.
She decides to use a sample size of 50.

Here are the numbers in each year group.

Year	Number of students
7	155
8	170
9	178
10	180
11	165
12	102
13	93
Total	1043

(i) Calculate how many Year 13 students should be in the sample.

(b)(i) ..... **[2]**

(ii) State one advantage and one disadvantage of Sasha using a larger sample size than 50.

Advantage: .....

.....

Disadvantage: .....

..... **[2]**

3 Tom takes a counter, at random, from a bag of counters.

He records the colour of the counter and replaces it into the bag.

He does this 2000 times.

The table below shows his results.

Colour of counter	Red	Blue	Yellow
Number of times	653	509	838

(a) Can Tom be certain that there are only red, blue and yellow counters in the bag?

Give a reason to support your answer.

..... because .....

..... **[1]**

(b) Tom is now told that there are only red, blue and yellow counters in the bag.

(i) Complete the relative frequency table below.

Give each of your answers as a decimal.

Colour of counter	Red	Blue	Yellow
Relative frequency			

[2]

(ii) Explain why these relative frequencies are reasonable estimates of the probabilities of randomly choosing the different colours of counters from the bag.

.....

..... **[1]**

(iii) Tom chooses another counter from the bag at random.

Work out an estimate of the probability that it is either red or blue.

(b)(iii) ..... **[2]**

(iv) There are 24 counters altogether in the bag.

Work out an estimate of the number of yellow counters.

(iv) ..... **[2]**

4 The number of matches in each of 50 boxes is summarised in the table.

Number of matches	Frequency
46	7
47	18
48	14
49	10
50	1

Calculate the mean number of matches in a box.

_____ **[3]**

5 A research project studied two different varieties of daffodil, A and B.
50 bulbs of each variety were grown.
For each bulb, the height of the top of the flower above the soil was measured.

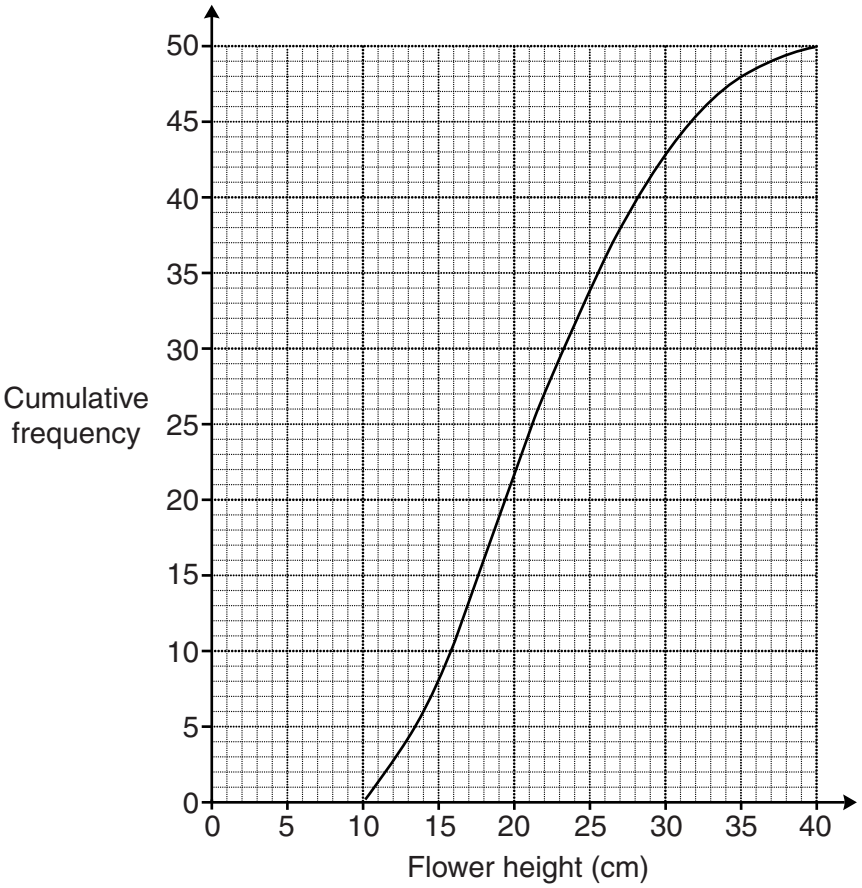
(a) This table summarises the results for variety A.

Flower height ($h$cm)	Frequency
$10 < h \leqslant 15$	14
$15 < h \leqslant 20$	20
$20 < h \leqslant 25$	11
$25 < h \leqslant 30$	5

Calculate an estimate of the mean flower height for variety A.

(a) _____ cm **[4]**

(b) This cumulative frequency diagram represents the results for variety B.



Use the cumulative frequency diagram to answer the following for variety B.

(i) How many bulbs had a flower height of 15 cm or less?

(b)(i) _____ **[1]**

(ii) Find an estimate of the median flower height.

(ii) _____ cm **[1]**

(iii) Find an estimate of the interquartile range of the flower heights.

(iii) _____ cm **[2]**

6 **(a** The students in group 11Y are raising money for charity.
They have decided to share the money between three charities: Sustrans, Oxfam and the NSPCC.
The ratio Sustrans : Oxfam : NSPCC is 1 : 2 : 5.

(i) Sally is a member of group 11Y.
She raises £72.

How much of this money will go to the NSPCC?

(a)(i) £ _____ **[2]**

(ii) £360 goes to Oxfam from group 11Y.

How much money did group 11Y raise altogether?

(ii) £ _____ **[2]**

(b) This table summarises the amount of money that the 30 members of group 11B raised for charity.

Amount (£a)	Frequency
$0 \leq a < 20$	2
$20 \leq a < 40$	5
$40 \leq a < 60$	7
$60 \leq a < 80$	11
$80 \leq a < 100$	3
$100 \leq a < 120$	2

Calculate an estimate of the mean amount raised by a member of this group.

(b) £ _____ **[4]**