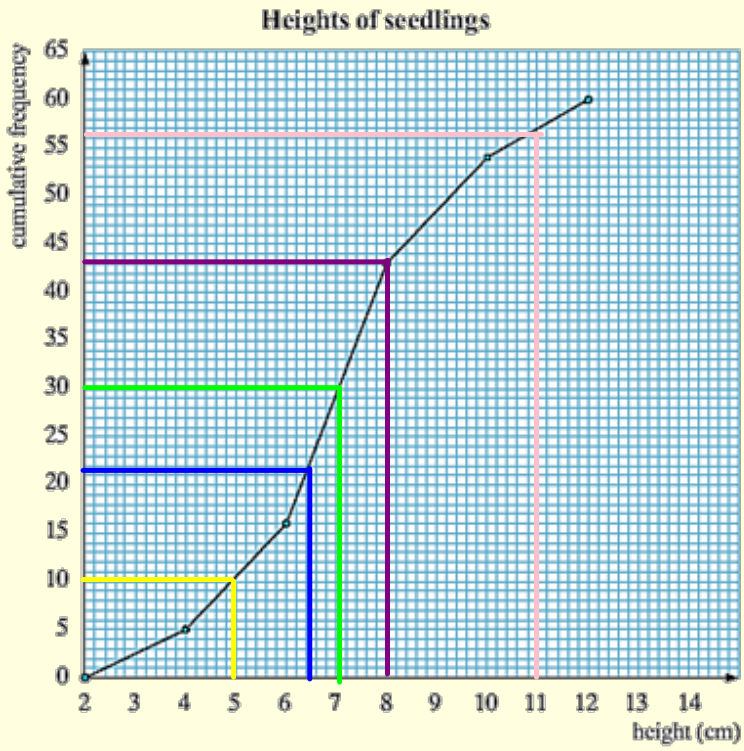
2.5 Continuous Data



Heights	Cumulative Frequency
4	5
6	15
8	43
10	53
12	60

Heights	Frequency
4	5
6	10
8	28
10	10
12	7

a) How many seedlings did the botanist measure? 60

b) How many seedlings have heights of 5 cm or less? 10

c) What is the median height? 7cm

d) What percentage of seedlings are taller than 8 cm?

43 < 8cm

17 > 8cm

$\frac{17}{60} = 28.3\%$

e) Find the height that represents the 35th percentile for the data. What does this number mean?

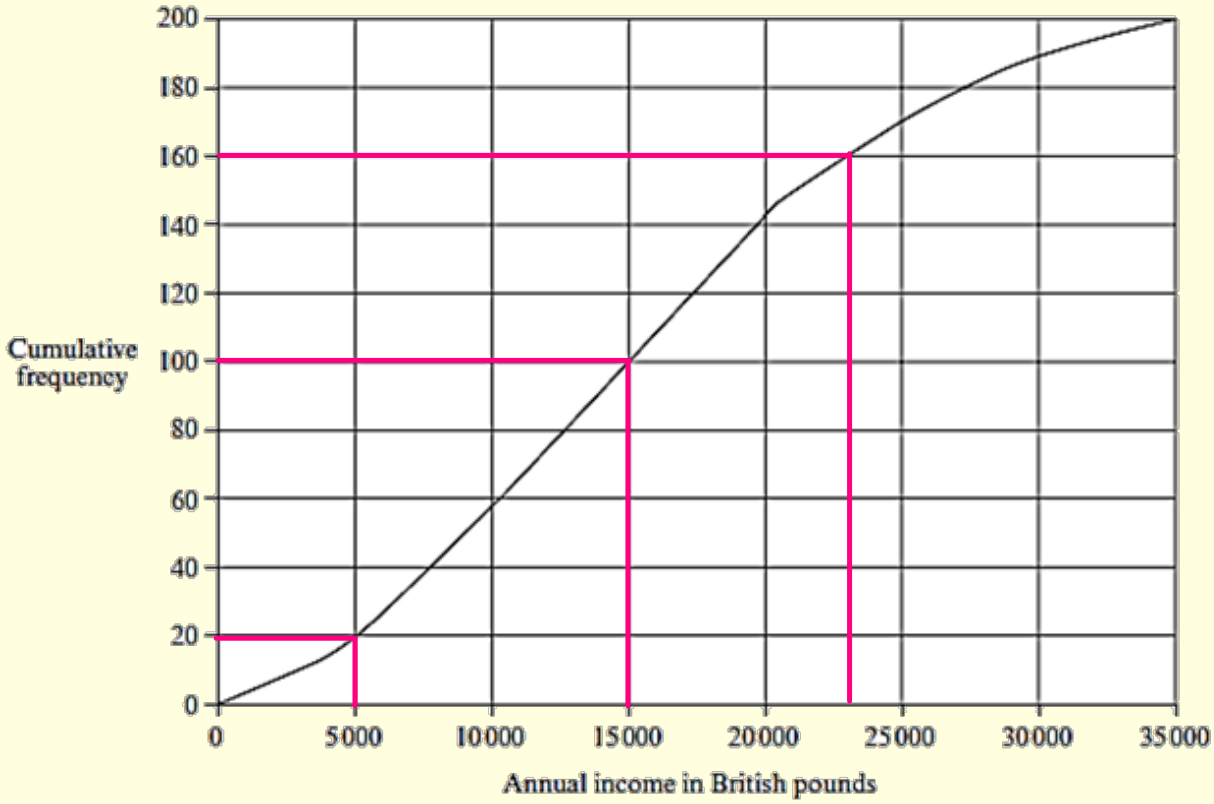
$0.35(60) = 21$

6.5 cm

f) What is the probability that a seedling chosen at random will be taller than 11 cm? 56

$\frac{4}{60} = \frac{1}{15}$ or 0.067

1. The graph shows the cumulative frequency for the incomes of 200 people.



Use the graph to estimate:

a) the number of people who earn less than 5000 British pounds per year

20 ppl

b) the median salary of the group of 200 people

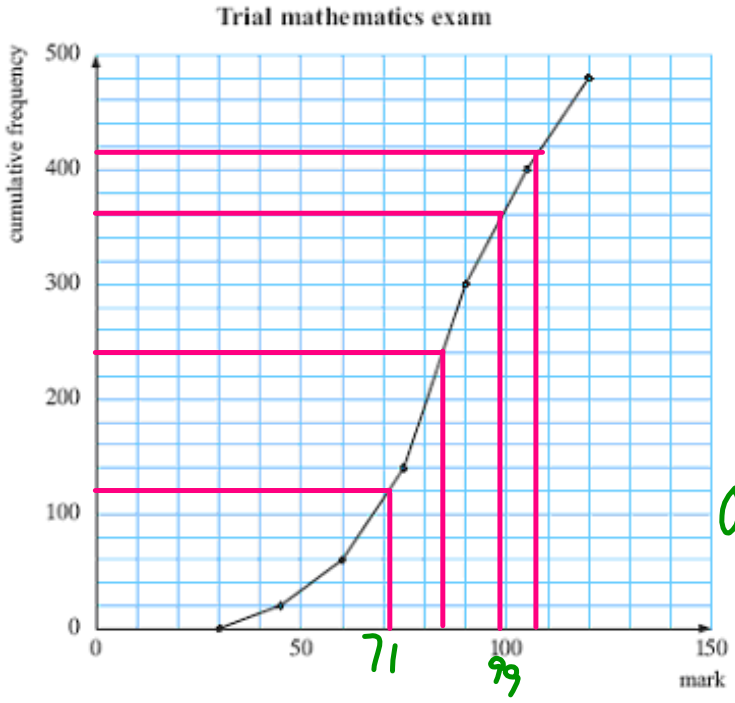
15000 GBP

c) the lowest income of the richest 20% of the group

$0.20(200) = 40$

$200 - 40 = 160$

23000 GBP



Find:

a how many students sat for the examination 480

b the probable maximum possible mark for the exam 120

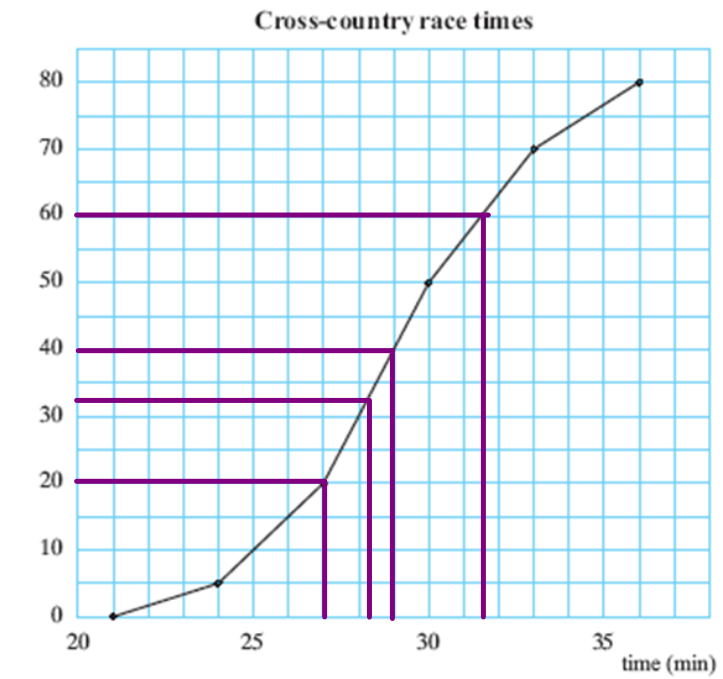
c the median mark 85

d the interquartile range 99-71= 28

e an estimate of the 85th percentile.

0.85(480)=408

108



Find:

a the lower quartile time 27

b the median 29

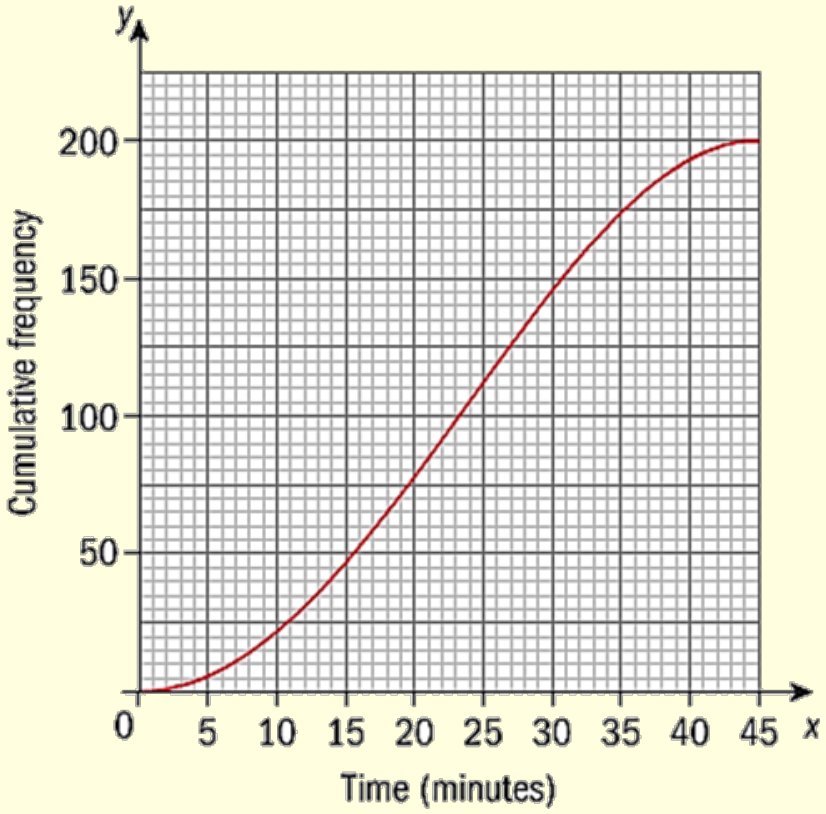
c the upper quartile 31.5

d the interquartile range 4.5

e an estimate of the 40th percentile.

80(.40)=32

28.2


y
200
150
100
50
0
5
10
15
20
25
30
35
40
45
x
Cumulative frequency
Time (minutes)

a) 171cm

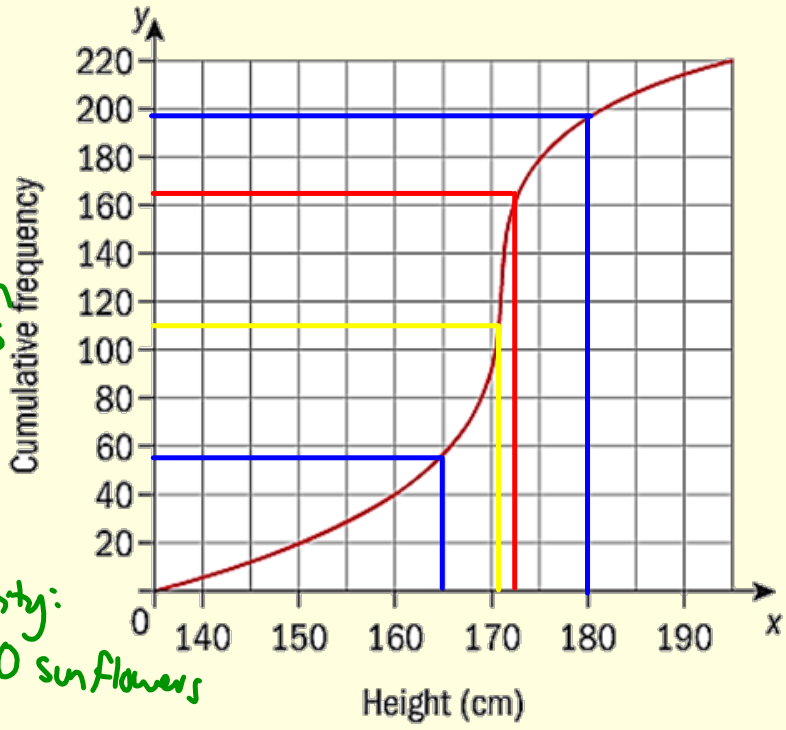
b) i. 55

ii. 165cm and less

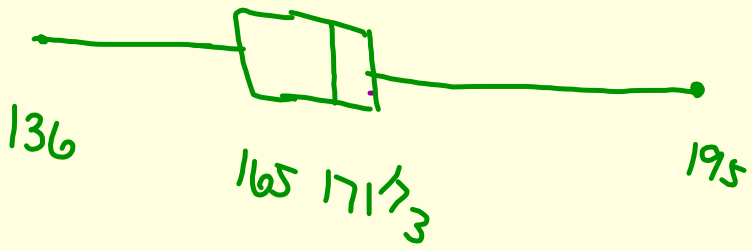
c) i. 22

ii. 180cm

d) IQR quantity: 110 sunflowers



e)

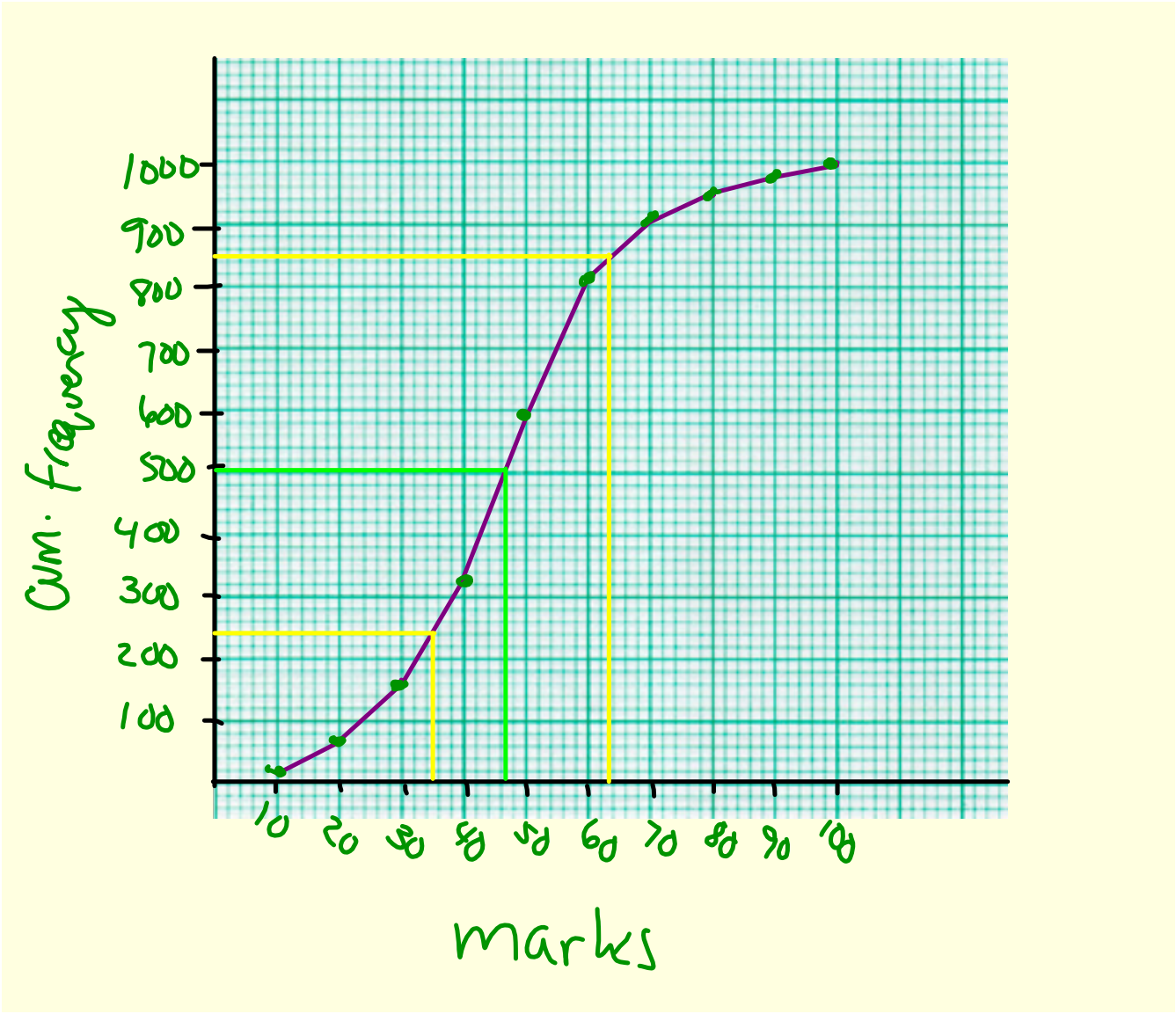


One thousand candidates sit an examination. The distribution of marks is shown in the following grouped frequency table.

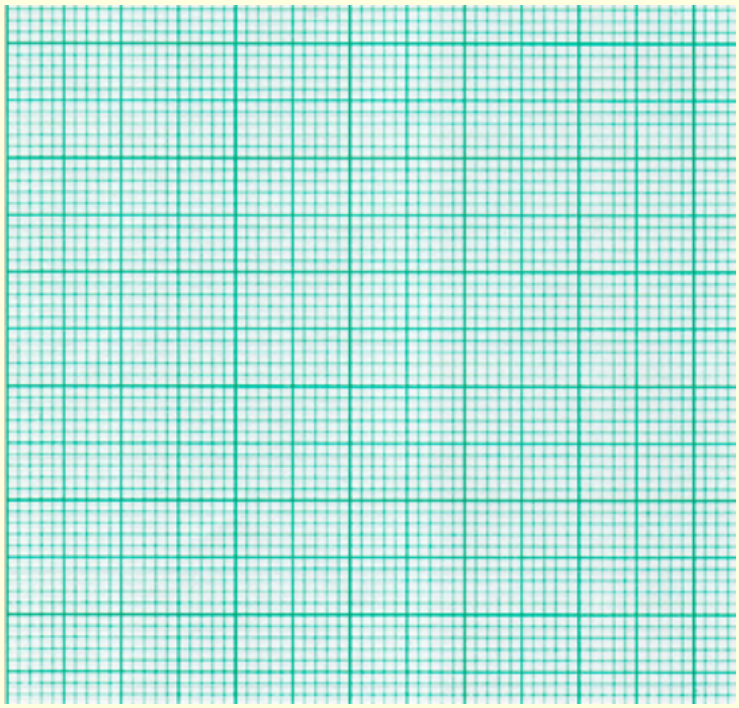
Marks	1–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90	91–100
Number of candidates	15	50	100	170	260	220	90	45	30	20

(a) **Copy** and complete the following table, which presents the above data as a cumulative frequency distribution. *[3 marks]*

Mark	≤10	≤20	≤30	≤40	≤50	≤60	≤70	≤80	≤90	≤100
Number of candidates	15	65	165	335	595	815	905	950	980	1000


Cum. frequency
1000
900
800
700
600
500
400
300
200
100
10
20
30
40
50
60
70
80
90
100
marks

Speed v	Number of cars
$v \leq 60$	0
$60 < v \leq 70$	7
$70 < v \leq 80$	25
$80 < v \leq 90$	63
$90 < v \leq 100$	70
$100 < v \leq 110$	71
$110 < v \leq 120$	39
$120 < v \leq 130$	20
$130 < v \leq 140$	5
$v > 140$	0



Homework:

WS 1-4