Maths A & I

Statistics 1 exam.

Name:
Date:

Remember:
- If nothing else is stated, provide your answers with 3 sf.
- Use sigma for the standard deviation
- When answering questions with the calculator you have to state that the answer was provided by the calculator.

1. These are the weights (in grams) of garlic cloves from the subspecies A:

3.81	Find: (answer all questions with 3 sf)
3.43	
3.88	a) Average weight(1)
3.51	
3.85	b) Median weight(1)
3.61	
3.73	c) Variance (1)
3.76	
3.71	d) Standard deviation (1)
3.56	
	e) Relative standard deviation (1)

2. These are the weights of garlic cloves from subspecies B.

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3.99	a) Compare the averages and the ranges of the two garlic subspecies. (2)
3.91	
3.62	
3.57	
4.01	
3.67	
3.97	
3.52	b) Discuss whether or not the garlic cloves of subspecies B are bigger or smaller than the
3.78	ones of subspecies A (3)
3.95	

3. Here is a table with the number of doctor's appointments each student in a school has.

appointments	students	Calculate: (give your answers with 3sf)
1	2	
2	15	a) The overall number of students (1)
3	48	
4	133	b) The average number of appointments students have (2)
5	93	
6	41	c) The standard deviation in the number of appointments (2)
7	16	
8	6	d) The variance in the number of appointments (2)
9	2	
10	1	e) The mode in the number of appointments (1)

f) Draw a histogram with the data provided (3)
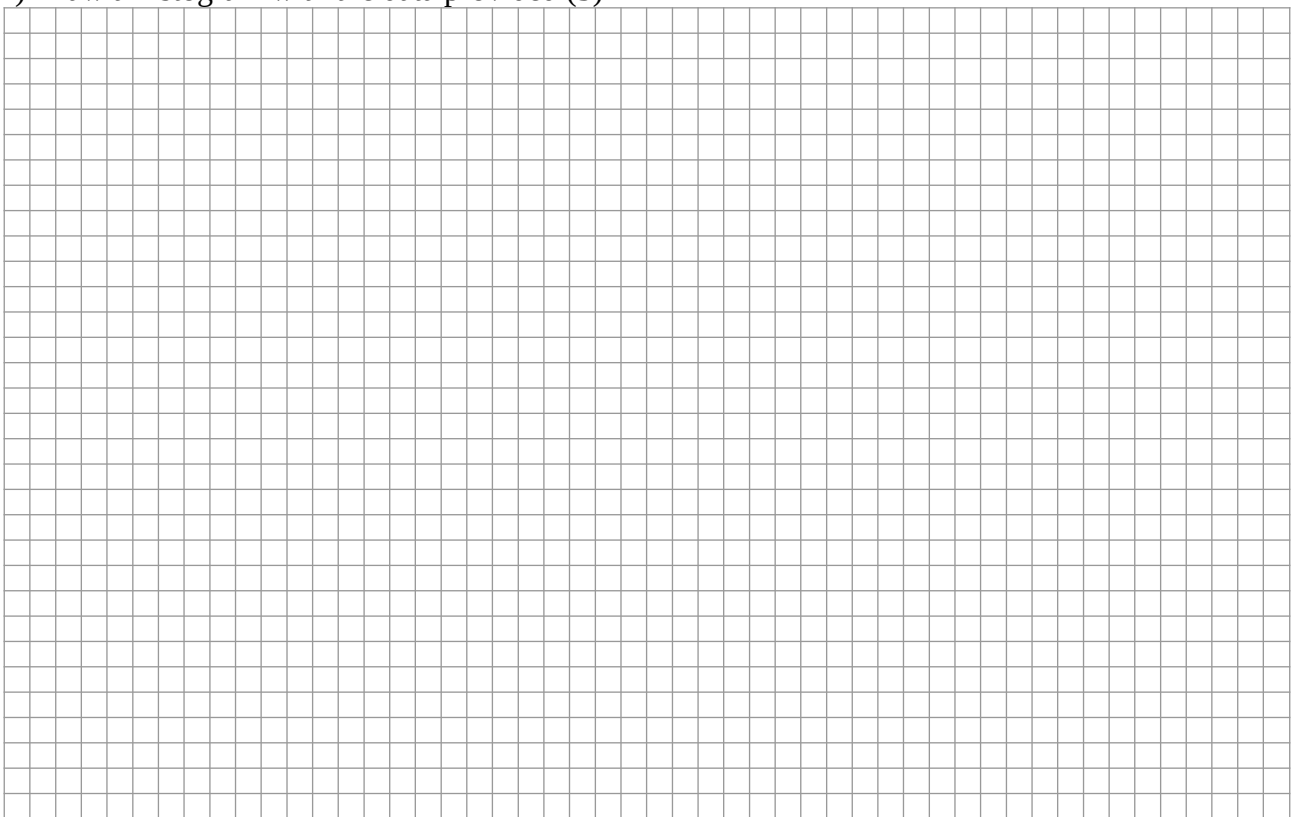
4. The following table shows the average body weight, x , and the average weight of the brain, y , of seven species of mammal. Both measured in kilograms (kg).

Species	Average body weight	Average weight of the brain
Cat	3	0.026
Cow	465	0.423
Donkey	187	0.419
Giraffe	529	0.680
Goat	28	0.115
Jaguar	100	0.157
Sheep	56	0.175

a) Find the range of the average body weights for these seven species of mammal. [2]

b) Calculate r (Pearson's) [2]

c) Describe the correlation (if any) [2]

d) Write down the equation of the best fit line in the form y=ax + b [2]

e) According to this correlation, what should be the average weight of the brain of grey wolves, whose average body weight is 36? [2]

f) bonus) The average body weight of mice is 0.023 kg. Would it be appropriate to use this correlation to estimate the weight of the brain of mice? why? [2]

5. This table shows the time (in minutes) people spend attending and celebrating certain sports event.

Time	people
0-40	0
50-90	16
100-140	45
150-190	31
200-240	12
250-290	9
300-340	5
350-390	4

a) Build a cumulative frequency table (1)
b) Draw a cumulative frequency curve (3)
c) Estimate the average time people spend in this event (2)
d) Using the cumulative frequency curve, find the median, Q_1 and Q_3 (2)
e) Write down the modal class (1)
f) If the minimum is 60 and the maximum is 370, draw a box and whiskers diagram (2)
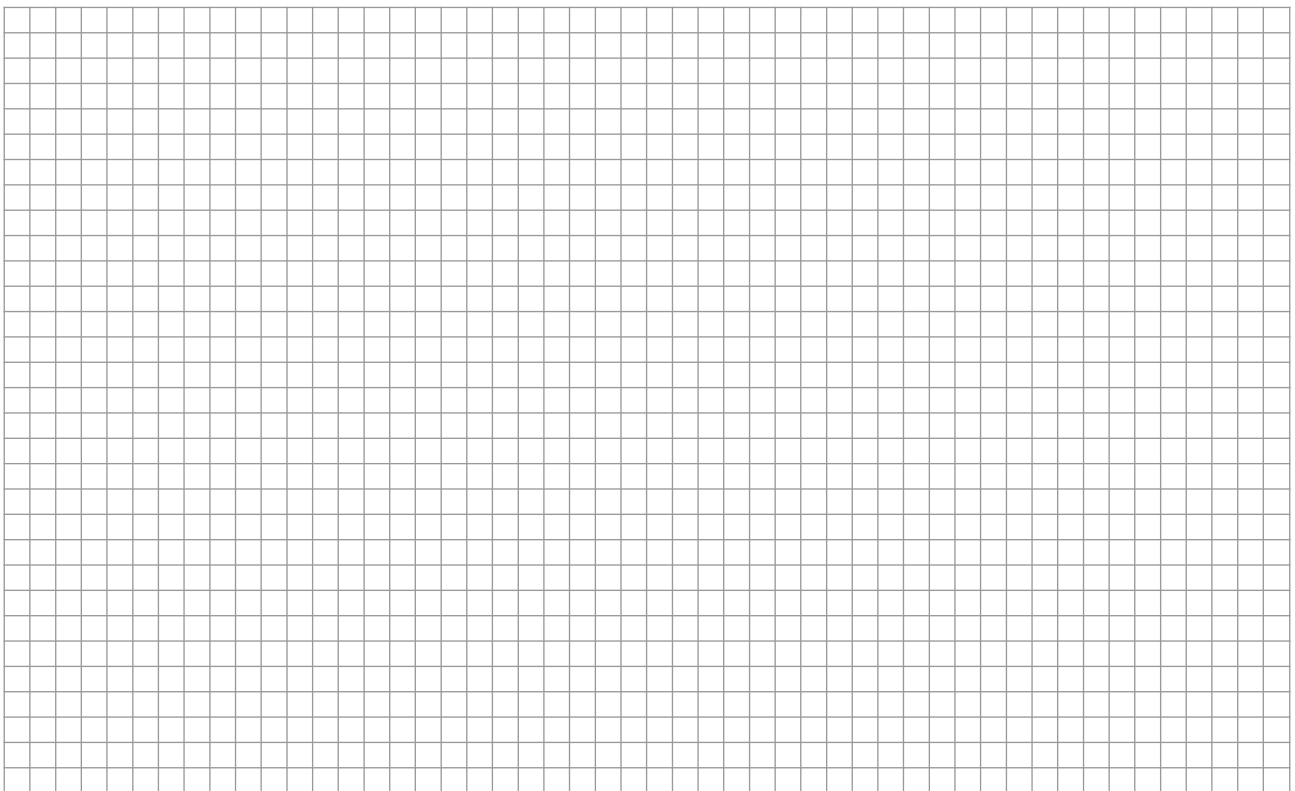
g) Bonus: use the table data to calculate the median. Is it more accurate than the one obtained with the cumulative frequency curve? Explain why (2)

5. This cumulative frequency curve shows the time it takes for 44 students to finish a series of exercises.
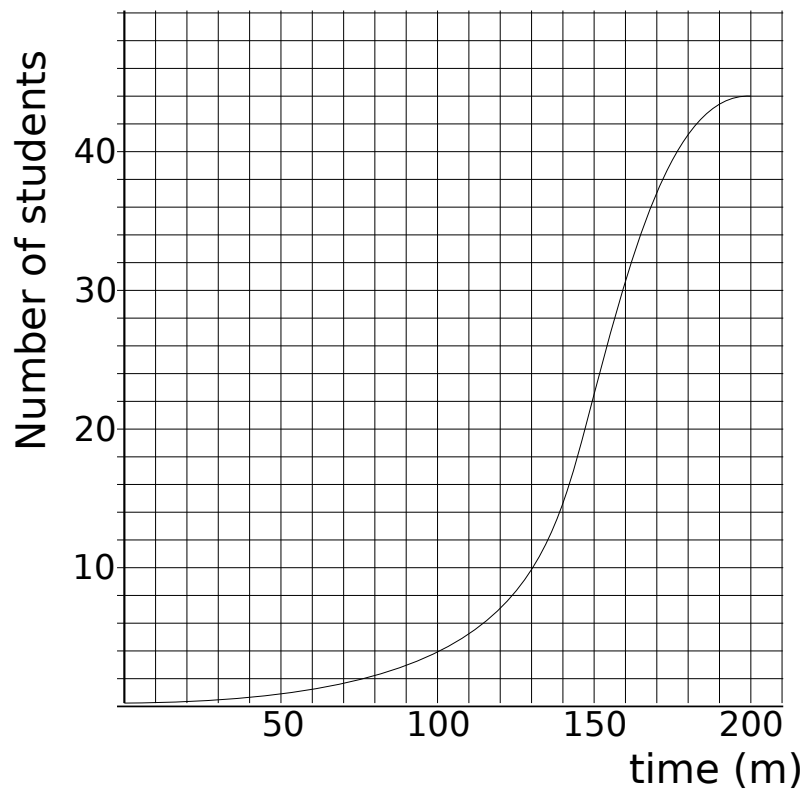
a) What percentage of students will have finished when 140 minutes have passed? (1)

b) How long do we have to wait for 25% of the students to finish? (2)

c) And for 90%? (2)