

CIE
Probability & Statistics 1
分类真题
2020-2022 册

A Level Clouds 出品

目录

Chapter 1 Representation of Data	1
Chapter 2 Measures of Central Tendency and Variation	41
Chapter 3 Probability	48
Chapter 4 Permutations and Combinations	78
Chapter 5 Probability Distributions	123
Chapter 6 Binomial and Geometric Distributions	146
Chapter 7 Normal Distribution	173

Chapter 1

Representation of Data

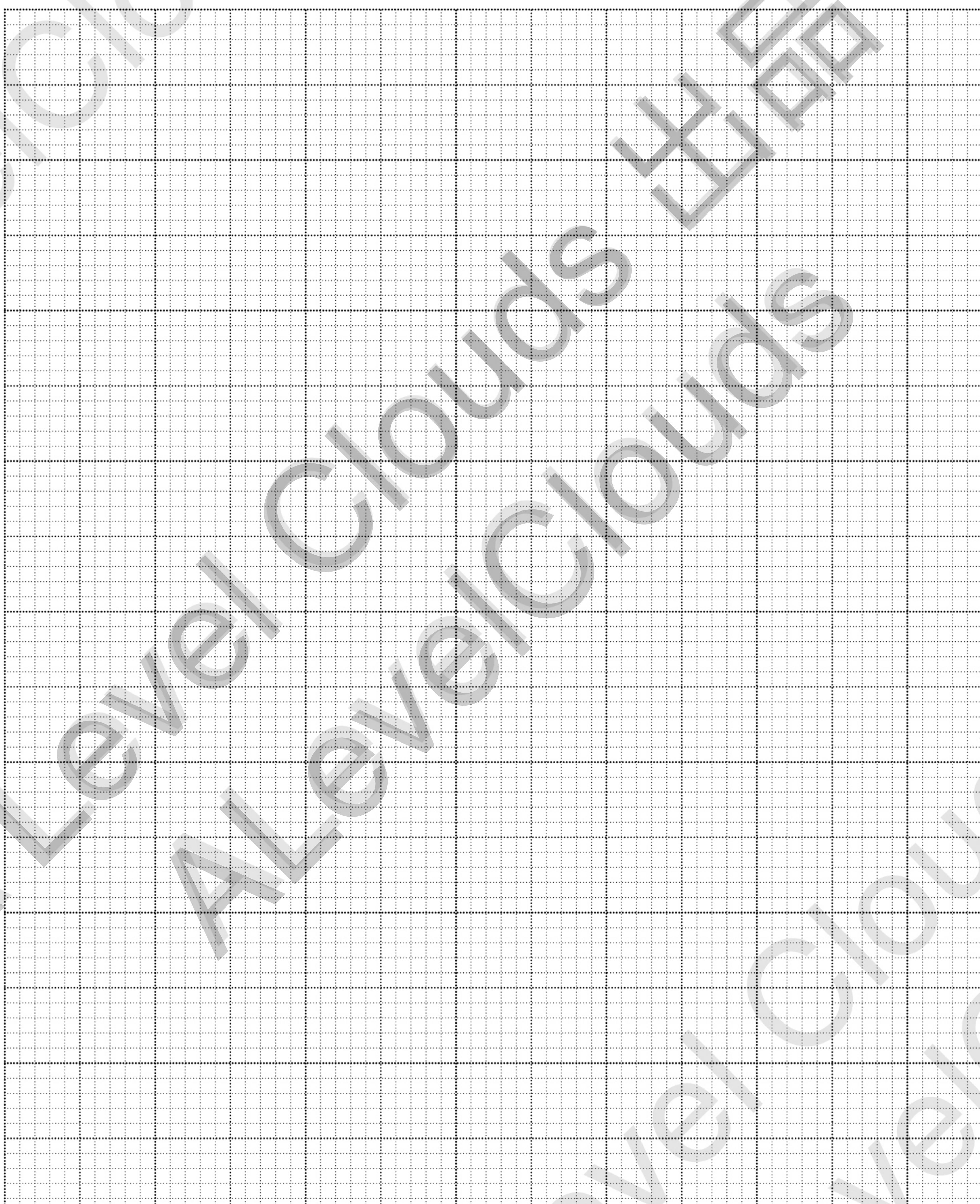
Q1: 9709/52/M20

- 7 Helen measures the lengths of 150 fish of a certain species in a large pond. These lengths, correct to the nearest centimetre, are summarised in the following table.

Length (cm)	0 – 9	10 – 14	15 – 19	20 – 30
Frequency	15	48	66	21

- (a) Draw a cumulative frequency graph to illustrate the data.

[4]



- (b) 40% of these fish have a length of d cm or more. Use your graph to estimate the value of d . [2]

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The mean length of these 150 fish is 15.295 cm.

- (c) Calculate an estimate for the variance of the lengths of the fish.

[3]

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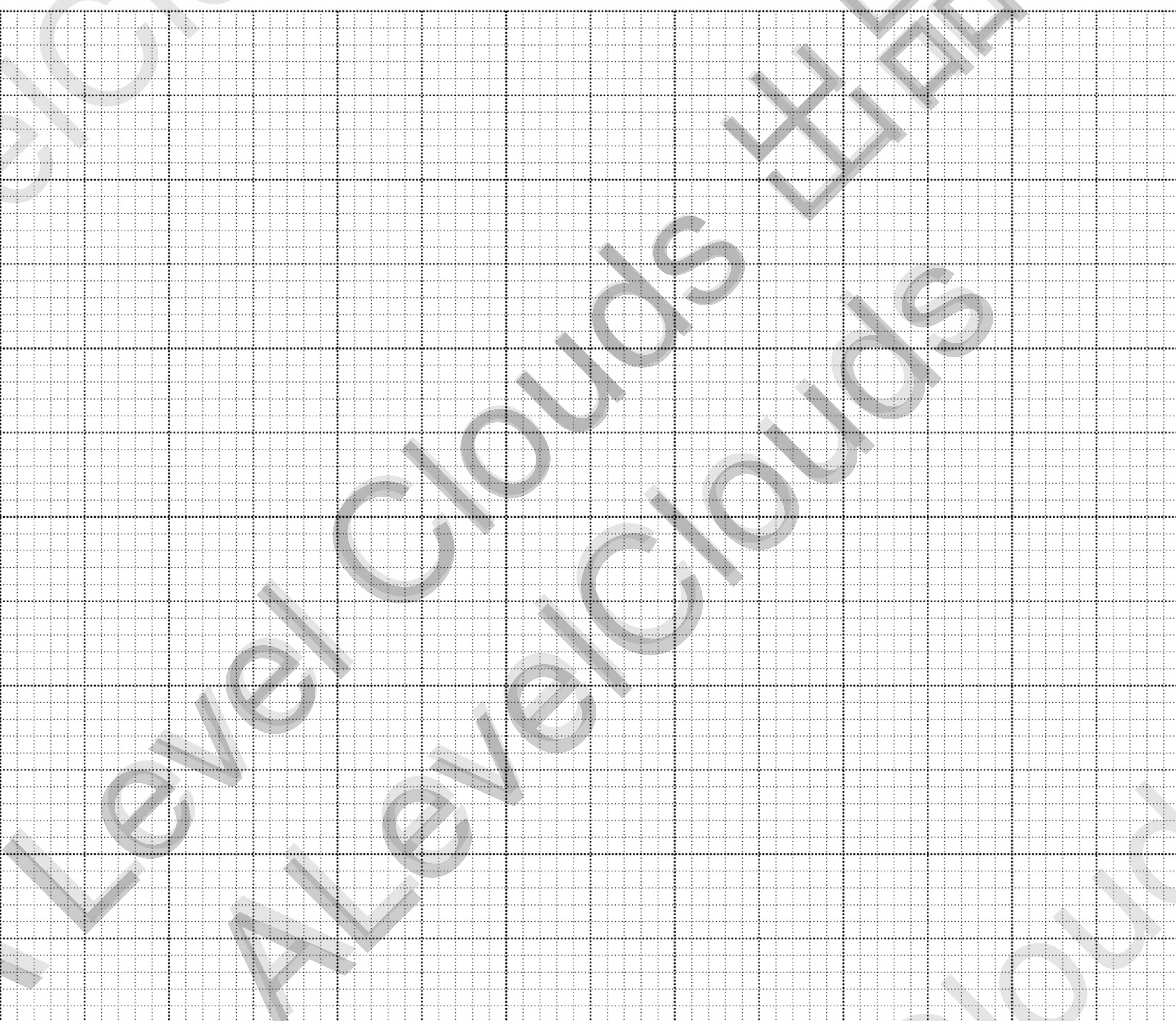
Q2: 9709/51/S20

- 7 The numbers of chocolate bars sold per day in a cinema over a period of 100 days are summarised in the following table.

Number of chocolate bars sold	1 – 10	11 – 15	16 – 30	31 – 50	51 – 60
Number of days	18	24	30	20	8

- (a) Draw a histogram to represent this information.

[5]



- (b) What is the greatest possible value of the interquartile range for the data? [2]

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- (c) Calculate estimates of the mean and standard deviation of the number of chocolate bars sold. [4]

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Q3: 9709/52/S20

- 3 Two machines, A and B , produce metal rods of a certain type. The lengths, in metres, of 19 rods produced by machine A and 19 rods produced by machine B are shown in the following back-to-back stem-and-leaf diagram.

A		B
7		21 1 2 4
6		22 2 4 5 5 6
3		23 0 2 6 8 9 9
0		24 3 3 4 6
8		25 6
7		
4		
3		
1		
1		
5		
5		
5		
3		
2		
4		
3		
1		
0		

Key: 7 | 22 | 4 means 0.227 m for machine A and 0.224 m for machine B .

- (a) Find the median and the interquartile range for machine A .

[3]

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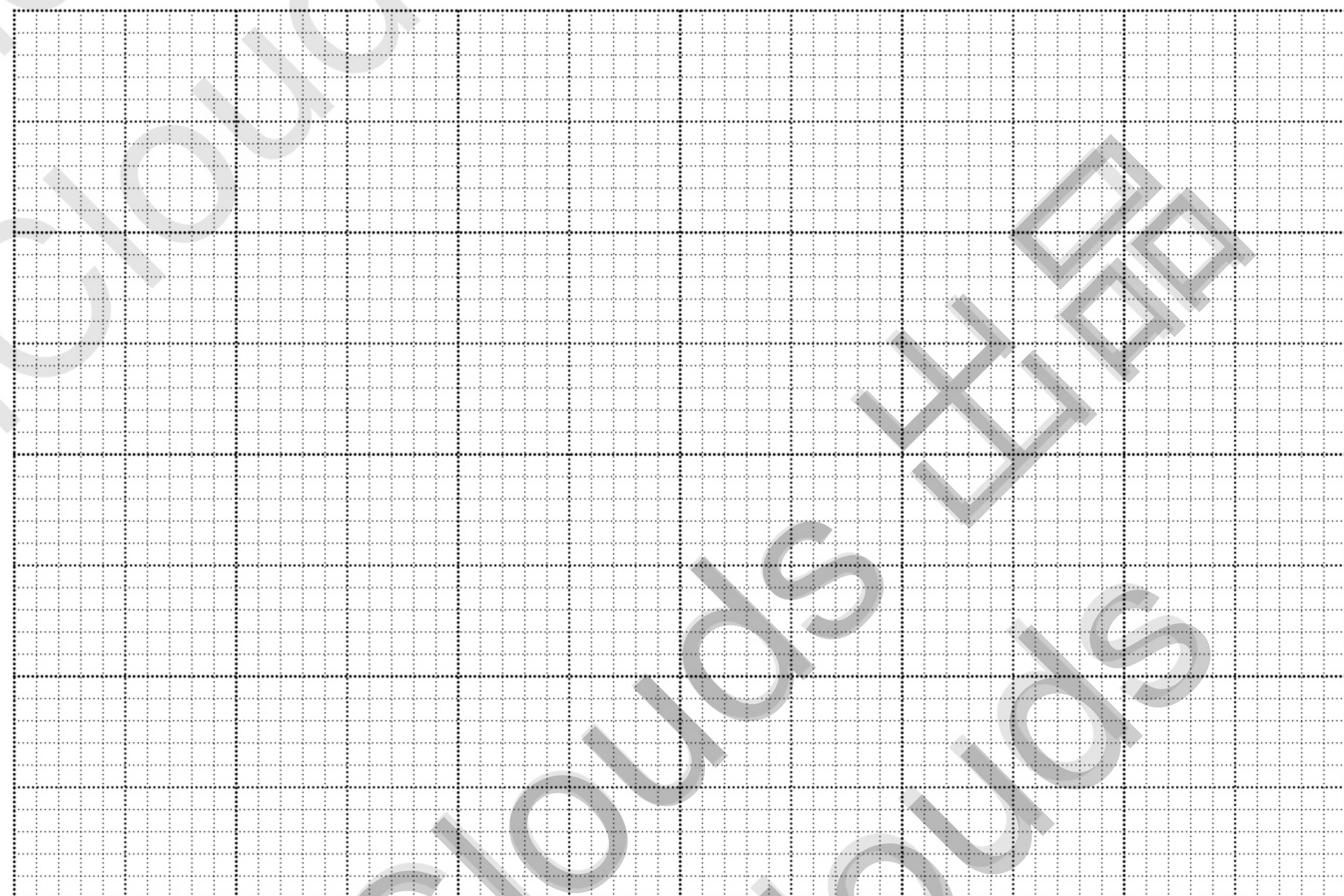
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It is given that for machine B the median is 0.232 m, the lower quartile is 0.224 m and the upper quartile is 0.243 m.

- (b) Draw box-and-whisker plots for A and B .

[3]



- (c) Hence make two comparisons between the lengths of the rods produced by machine A and those produced by machine B .

[2]

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Q4: 9709/53/S20

- 6 The annual salaries, in thousands of dollars, for 11 employees at each of two companies *A* and *B* are shown below.

Company A	30	32	35	41	41	42	47	49	52	53	64
Company B	26	47	30	52	41	38	35	42	49	31	42

- (a) Represent the data by drawing a back-to-back stem-and-leaf diagram with company *A* on the left-hand side of the diagram. [4]

- (b) Find the median and the interquartile range of the salaries of the employees in company A. [3]

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A new employee joins company B. The mean salary of the 12 employees is now \$38 500.

- (c) Find the salary of the new employee. [3]

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Q5: 9709/51/W20

- 6 The times, t minutes, taken by 150 students to complete a particular challenge are summarised in the following cumulative frequency table.

Time taken (t minutes)	$t \leq 20$	$t \leq 30$	$t \leq 40$	$t \leq 60$	$t \leq 100$
Cumulative frequency	12	48	106	134	150

- (a) Draw a cumulative frequency graph to illustrate the data.

[2]

