

## Estimating the Mean Past Paper Questions

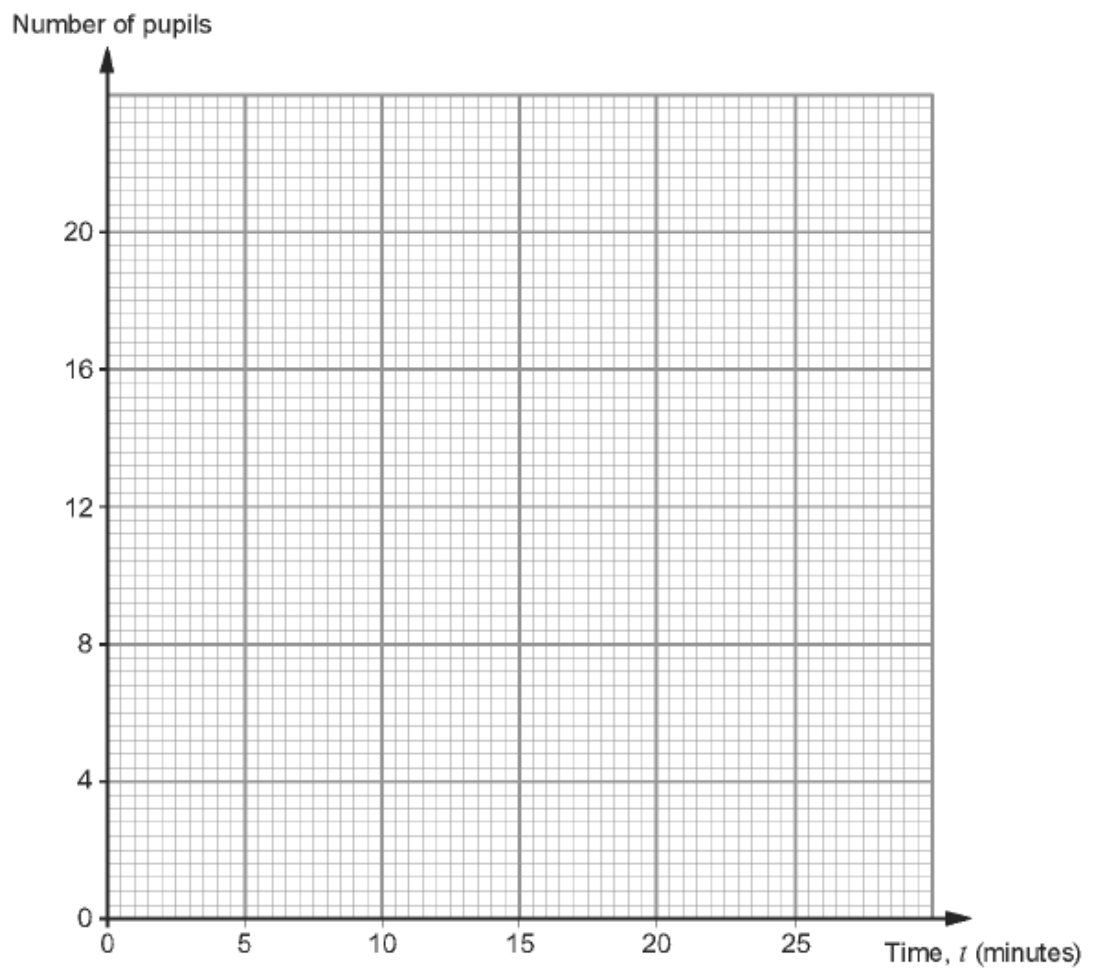
1.

A group of pupils was timed in completing a maths test. The results are shown in the grouped frequency table below.

Time, $t$ (minutes)	Number of pupils
$0 < t \leq 5$	19
$5 < t \leq 10$	17
$10 < t \leq 15$	10
$15 < t \leq 20$	5
$20 < t \leq 25$	2

(a) Draw a grouped frequency diagram to illustrate these results.

[2]



(b) Calculate an estimate of the mean time taken to complete the test. [4]

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(c) Write down the modal group. [1]

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2.

(a) A broadcasting company, *Stateside3*, investigated television-viewing habits.

The table below shows the number of minutes 80 people spent watching television last Wednesday.

Time ( $t$ minutes)	Frequency
$0 \leq t < 90$	10
$90 \leq t < 180$	38
$180 \leq t < 270$	20
$270 \leq t < 450$	8
$450 \leq t < 810$	4

(i) Did any of these people spend longer than 15 hours watching television last Wednesday?  
Give a reason for your answer. [1]

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(ii) Calculate an estimate for the mean time these people spent watching television last Wednesday. [4]

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3. (a) (i) When visiting a hat shop, customers had the circumference of their head measured. The table shows the results for the customers who bought a hat during December.

Head circumference, $c$ cm	Number of customers
$50 \leq c < 54$	12
$54 \leq c < 58$	32
$58 \leq c < 62$	14
$62 \leq c < 66$	2

Calculate an estimate for the mean head circumference.

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[4]

- (ii) The hat shop sells 4 different sizes of hats. The conversion table from head circumference to hat size is shown below.

Head circumference, $c$ cm	Hat size
$50 \leq c < 54$	1
$54 \leq c < 58$	2
$58 \leq c < 62$	3
$62 \leq c < 66$	4

A salesman places an order for new stock for the hat shop.

The salesman's order form shows that about half of the hats ordered are size 2.

The owner of the shop says the order should show that about a quarter of the hats ordered are size 2.

Who is more likely to be correct, the salesman or the owner of the shop?

You must give a reason for your answer.

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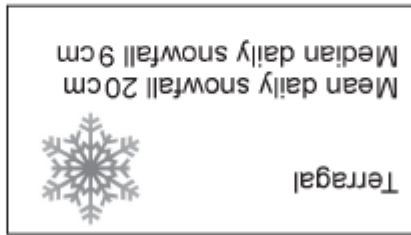
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[2]

**Numerical Answers** 1.(b) 8.2 minutes 1.(c)  $0 < t \leq 5$  minutes 2. (a)(ii) 193.5 minutes 3. (a)(i) 56.4 cm 4. (a)(i) 23.2 cm 4.(a)(ii)  $25 \leq s < 35$  (iii)  $15 \leq s < 25$

Ralph was on holiday in Terragal for these 28 days.  
 He does not understand how the mean snowfall could be as high as 20 cm.  
 Ralph says,  
 'On about half of the days there was less than 10 cm of snowfall each day;  
 Write a brief explanation to help Ralph understand how it is possible to have a mean of  
 20 cm with a median of 9 cm.  
 [1]



(b) In the mountains of Terragal, the data collected on snowfall, over the same 28 days, was as follows.

(iii) Write down the class in which the median lies.  
 [1] Median class .....

(ii) State the modal class.  
 [1] Modal class .....

(i) Calculate an estimate for the mean daily snowfall for the 28 days.  
 [4]

Daily snowfall, $s$ (cm)	Number of days
$5 \leq s < 15$	5
$15 \leq s < 25$	10
$25 \leq s < 35$	12
$35 \leq s < 45$	1

(a) In the mountains of Aplenrub, the snowfall on each of 28 days was measured. The results are summarised in the table below.