

FP MATH SHORT TEST (SY 2018-2019)

SEPTEMBER 17, 2018

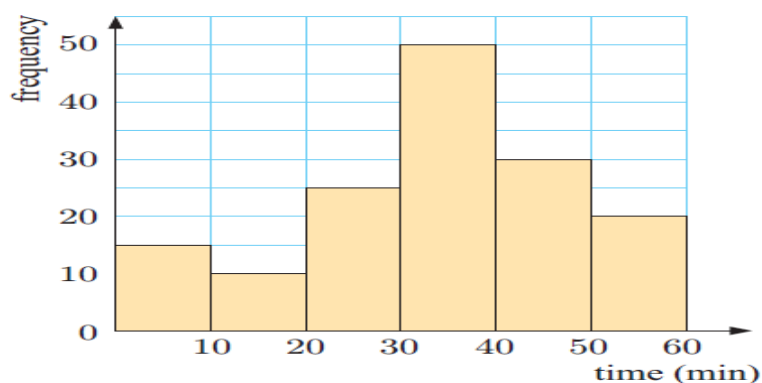
15 minutes (15 marks)

Name:

INSTRUCTIONS TO CANDIDATES

- Write your given name first and then your family name.
- Do not open this test paper until instructed to do so.
- You are allowed to use calculator for this test.
- Answer all questions in the provided space.

1. The frequency histogram illustrates the times taken by a group of people to solve a puzzle.



- a. Complete the table below using information from the histogram. (5 marks)

Time (min)	Frequency (f)	Midpoint (x)	$(f) \times (x)$
$0 < t \leq 10$	15	5	75
$10 < t \leq 20$	10	15	150
$20 < t \leq 30$	25	25	625
$30 < t \leq 40$	50	35	1750
$40 < t \leq 50$	30	45	1350
$50 < t \leq 60$	20	55	1100
	$\Sigma f = 150$		$\Sigma(f)(x) = 5050$

(A1 mark for frequency column, A1 mark for $\Sigma f = 150$, A1 mark for midpoint column, A1 mark for $(f)(x)$ column, and A1 mark for $\Sigma(f)(x) = 5050$)

- b. Calculate the mean (in 3 significant figures) of the data. (2 marks)

$$\begin{aligned}
 \bar{x} &= \frac{\Sigma fx}{\Sigma f} \\
 &= \frac{5050}{150} \\
 &\approx 33.7 \text{ (3 sig.fig)}
 \end{aligned}$$

M1

A1

- c. Estimate the median time taken to solve the puzzle. (1 mark)

Median = 35

A1

2. Jenny loves cats. She visits every house in her street to find out how many cats live there. The responses are given below

Number of cats	Frequency
0	11
1	9
2	8
3	5
4	1
5	1

- a. Draw a dot plot to display this data.

(2 marks)

A1A0 for 3 correct columns. A1A1 for 6 correct columns.

Frequency

•					
•					
•	•				
•	•	•			
•	•	•			
•	•	•			
•	•	•	•		
•	•	•	•		
•	•	•	•		
•	•	•	•		
•	•	•	•	•	•
0	1	2	3	4	5

Number of cats

- b. Describe the distribution of the data.

(1 mark)

positively skewed

A1

- c. What percentage of the houses with two or three cats?

(1 mark)

$$\frac{13}{35} \times 100\% \approx 37.1\% \text{ (3sig. fig)}$$

A1

3. Dave took seven spelling tests, each with ten words, but he could only find the results of five of them. These were 9, 5, 7, 9, and 10. He asked his teacher for the other two results and the teacher said that the mode of his scores was 9 and the mean was 8. Given that Dave remembers he only got one 10, find the two missing results.

(3 marks)

$$\frac{5+7+9+9+10+a+b}{7} = 8$$

M1

$$\frac{40+a+b}{7} = 8$$

$$40 + a + b = 56$$

$$a + b = 16$$

Possibilities:

A1 for all correct possibilities

6 and 10, reject these because the modes will be 9 and 10.

7 and 9, accept these scores

8 and 8, reject these because the modes will be 8 and 9.

Therefore, the missing results are 7 and 9.

A1