

Skill

Group A - Mode

Write down the mode of the following frequency tables:

1)		2)		3)	
x	Frequency	X	Frequency	x	Frequency
1	3	5	5	10	4
2	9	6	11	11	5
3	4	7	3	12	6
4	2	8	2	13	9
5	1	9	2	14	3

Group B - Median

Find the median from the following frequency tables:

Jency	х	Frequency		
		requeitcy	X	Frequency
3	5	5	10	4
)	6	11	11	5
1 T	7	3	12	6
2	8	2	13	9
	9	2	14	3
	· · · · · · · · · · · · · · · · · · ·	6 7 8 9	6 11 7 3 8 2 9 2	6 11 11 7 3 12 8 2 13 9 2 14

Group C - Mean

Work out the mean from the following frequency tables (giving answer to 3 SF):

1)	
X	Frequency
1	3
2	9
3	4
4	2
5	1

2)	
X	Frequency
5	5
6	11
7	3
8	2
9	2

21	
ЭJ	

- /	
x	Frequency
10	4
11	5
12	6
13	9
14	3



Group D - Modal class

Write down the modal class interval of the following grouped frequency tables:

1)		2)			3)	
X	Frequency	X	Frequency		×	Frequency
0 ≤ x < 20	1	0 ≤ x < 10	4		0 ≤ x < 5	12
20 < x < 40	2	10 ≤ x < 20	6		5 ≤ x < 10	10
20 3 X < 40	2	20 ≤ x < 30	7		10 ≤ x < 15	5
40 ≤ x < 60	4	30 ≤ x < 40	10		15 ≤ x < 20	6
60 ≤ x < 80	3	40 ≤ x < 50	3		20 ≤ x < 25	4
80 ≤ x < 100	1	50 ≤ x < 60	1]	25 ≤ x < 30	2

Group E - Class containing the median

Find the class interval containing the median from the following grouped frequency tables:

1	1
1	-/

x	Frequency
0 ≤ x < 20	1
20 ≤ x < 40	2
40 ≤ x < 60	4
60 ≤ x < 80	3
80 ≤ x < 100	1

Z)	
x	Frequency
0 ≤ x < 10	4
10 ≤ x < 20	6
20 ≤ x < 30	7
30 ≤ x < 40	10
40 ≤ x < 50	3
50 ≤ x < 60	1

3)	
x	Frequency
0 ≤ x < 5	12
5 ≤ x < 10	10
10 ≤ x < 15	5
15 ≤ x < 20	6
20 ≤ x < 25	4
25 ≤ x < 30	2

Group F - Estimated mean

Work out the estimated mean from the following grouped frequency tables (giving answer to 3 SF):

1	1
-	-,
	•

x	Frequency
0 ≤ x < 20	1
20 ≤ x < 40	2
40 ≤ x < 60	4
60 ≤ x < 80	3
80 ≤ x < 100	1

2)

2

-/	
x	Frequency
0 ≤ x < 10	4
10 ≤ x < 20	6
20 ≤ x < 30	7
30 ≤ x < 40	10
40 ≤ x < 50	3
50 ≤ x < 60	1

2	١
3)

,	
x	Frequency
0 ≤ x < 5	12
5 ≤ x < 10	10
10 ≤ x < 15	5
15 ≤ x < 20	6
20 ≤ x < 25	4
25 ≤ x < 30	2



Applied

 (a) Here is a frequency table showing the ages of 25 people in the U21s rugby club.

Alex thinks the data is bimodal.

Is she correct? Explain your answer.

(b)	Here is a frequency table
	showing the ages of 30 people
	in the U21s football club.

Mia thinks the mode is 8.

Is she correct? Explain your answer.

2) (a) Here is a frequency table showing the number of people in 20 cars

Find the median number of occupants.

Age	Frequency
16	2
17	5
18	7
19	7
20	4

Age	Frequency
16	8
17	4
18	8
19	7
20	8

Number of people	Frequency
1	5
2	6
3	4
4	4
5	1

(b) Here is a frequency table showing the number of eggs in 20 nests in a survey on a local river.

Find the median number of eggs.

Number of eggs	Frequency
1	1
2	2
3	7
4	6
5	4



3) (a) Here is a grouped frequency table showing the number of people who are members of 25 clubs in a town.

Estimate the mean number of people.

(b) Here is a grouped frequency table showing the number of people on 45 buses.

Estimate the mean number of people.

Give your answer to 1 decimal place.

Number of people	Frequency
1-10	6
11-20	10
21-30	4
31-40	5

Number of people	Frequency
0 to 9	20
10 to 19	6
20 to 29	5
30 to 39	8
40 to 49	6



Averages from a Frequency Table - Exam Questions

1) The frequency table shows the number of siblings of 25 students.

Number of siblings	Frequency
0	9
1	7
2	5
3	3
4	1

(a) Write down the mode.

.....(1)

(b) Find the median.

.....(1)

(b) Calculate the mean.

(2) (4 marks)

2) The grouped frequency table shows the number of passengers on 100 trains.

Number of passengers, x	Frequency
0 ≤ x < 20	12
20 ≤ x < 40	17
40 ≤ x < 60	26
60 ≤ x < 80	29
80 ≤ x < 100	16

(a) Write down the modal class.

.....(1)



Averages from a Frequency Table - Exam Questions

(b) Estimate the mean.

(3) (4 marks)

3) The frequency table shows the number of people in 39 swimming sessions at the local swimming pool.

Number of people, x	Frequency
x < 15	0
15 ≤ x < 20	2
20 ≤ x < 25	15
25 ≤ x < 30	13
30 ≤ x < 35	9

(a) Write down the modal class interval.

.....(1)

.

(1)

- (b) Find the class interval containing the median.
- (c) Estimate the mean. Give your answer to 1 decimal place.

(4) (6 marks)



	Que	stion			Answer
	Skill	Questions			
Group A	Write frequ	e down the mode of the following iency tables:			
	1)	Х	Frequency		1) 2
		1	3		
		2	9		
		3	4		
		4	2		
		5	1	7	
	21	×	Frequency)	21 6
	Z	5	5		2,0
		6	11		
		7	3	-	
		8	2		
		9	2	-	
)	
	3)	X	Frequency		3) 13
		10	4		
		11	5		
		12	6		
		13	9		
		14	3		
Group B	Find t tables	the median from the following frequency es:			
	1)	X	Frequency		1) 2
		1	3		
		2	9		
		3	4		
		4	2	7	
		5	1		



Group B	2)	X	Frequency	2) 6
contd		5	5	
		6	11	
		7	3	
		8	2	
		9	2]
				2.10
	3)	X	Frequency	3) 12
		10	4	
		11	5	
		12	6	
		13	9	
		14	3]
Group C Work out the mean from the followin		from the follow	ng 3 SE)·	
	1)	X	Frequency	1) 2.42 (to 3 sf)
		1	3	
		2	9	
		3	4	
		4	2	
		5	1	
	2)		F	21 6 35 $(t_0, 3, c_1)$
	2	X	Frequency	$\mathbf{z}_{\mathbf{j}}$ 0.35 (10.5 SI)
		5	5	
		6	11	
		7	3	
		8	2	
		9	2	
	3)	X	Frequency	3) 12. 1 (to 3 sf)
		10	4	
		11	5	
		12	6	
		13	9	
		14	3	



Group D	Write	e down the m	odal class int	erval of the	
	follo	wina arouped			
	1)	x	Frequency		1) $40 \le x < 60$
		0 ≤ x < 20	1		
		20 ≤ x < 40	2		
		40 ≤ x < 60	4		
		60 ≤ x < 80	3		
		80 ≤ x < 100	1		
				_	
	2)	x	Frequency		2) $30 \le x < 40$
		0 ≤ x < 10	4		
		10 ≤ x < 20	6		
		20 ≤ x < 30	7		
		30 ≤ x < 40	10		
		40 ≤ x < 50	3		
		50 ≤ x < 60	1	J	
	3)	x	Frequency		3) $0 \le x < 5$
		0 ≤ x < 5	12		
		5 ≤ x < 10	10		
		10 ≤ x < 15	5		
		15 ≤ x < 20	6		
		20 ≤ x < 25	4		
		25 ≤ x < 30	2		
Group F	Find	the class inte	erval containir	og the median from	
	the f	ollowing grou	upea trequend	cy tables:	
	1)	x	Frequency		1) $40 < x < 60$
	-/	0 ≤ x < 20	1		
		20 ≤ x < 40	2		
		40 ≤ x < 60	4		
		60 ≤ x < 80	3		
		80 ≤ x < 100	1		
	2)	×	Frequency		2) $20 \le x < 30$
		0 ≤ x < 10	4		
		10 ≤ x < 20	6		
		20 ≤ x < 30	7		
		30 ≤ x < 40	10		
		40 ≤ x < 50	3		
		50 ≤ x < 60	1		



	2				2) 5 4 4 4 0
Group E	3)	X	Frequency		3) $5 \le x < 10$
conta		0 ≤ x < 5	12		
		5 ≤ x < 10	10		
		10 ≤ x < 15	5		
		15 ≤ x < 20	6		
		20 ≤ x < 25	4		
		25 ≤ x < 30	2		
Group F	vvork	out the estima	ated mean fron	n the following	
	group	ped frequency t	tables (giving a	answer to 3 SF):	
	1		I _		$1 \subset 1 \cup (+ 2 \cup -1)$
	1)	X	Frequency	_	1) 51.8 (10 5 51)
		0 ≤ x < 20	1	_	
		20 ≤ x < 40	2		
		40 ≤ x < 60	4		
		60 ≤ x < 80	3		
		80 ≤ x < 100	1	J	
	2)	x	Frequency		2) 26. 6 (to 3 sf)
		0 ≤ x < 10	4		
		10 ≤ x < 20	6		
		20 ≤ x < 30	7		
		30 ≤ x < 40	10		
		40 ≤ x < 50	3		
		50 ≤ x < 60	1		
	3)	X	Frequency		3) 10.7 (to 3 sf)
		0 ≤ x < 5	12		
		5 ≤ x < 10	10		
		10 ≤ x < 15	5		
		15 ≤ x < 20	6		
		20 ≤ x < 25	4		
		25 ≤ x < 30	2		
	1				



	Qı	uestion			A	nswer
	Ар	plied Questions				
1)	a) Here is a frequency table showing the ages of 25 people in the U21s rugby club.			a)	Yes. The highest frequency is 7 and it occurs twice. The data is bimodal. The modal age is 18 & 19.	
		Age	Frequency			
		16	2			
		17	5			
		18	7			
		19	7			
		20	4	J		
		Alex thinks the c Is she correct? E	lata is bimodal. Explain your ans	swer.		
	b) Here is a frequency table showing the ages of 30 people in the U21s football club.				b)	No. 8 can not be the mode as it is not one of the possible ages. 8 is the highest frequency and it occurs three
		Age	Frequency]		times. You can not have three modes.
		16	8			
		17	4			
		18	8			
		19	7			
		20	8	J		
		Mia thinks the m	ode is 8.			
		Is she correct? E	xplain your ans	wer.		
2)	a)	Here is a freque	ncy table showi	ng the	a)	$10^{th} = 2, 11^{th} = 2$
		number of peopl	e in 20 cars			Median = 2
		Number of people	Frequency			
		1	5			
		2	6			
		3	4			
		4	4			
		5	1			
		Find the median	number of occu	ipants.		



	-						
	b)	Here is a freque	ncy table shov	ving the r	number	b)	$10^{th} = 3, 11^{th} = 4$
		of eggs in 20 ne	sts in a survey		Median = 3.5		
		Number of eggs	Frequency				
		1	1				
		2	2				
		3	7				
		4	6				
		5	4				
		Find the median	number of eg	gs.			
3)	a)	Here is a freque	ncy table shov	ving the r	umber	a)	Using midpoints:
	of people who are members of 25 clubs in a						5. 5, 15. 5, 25. 5 and 35. 5.
		town.			Estimated mean $= 18.7$		
		Number of peo	ple Frequ	iency			
		1-10	e	6			
		11-20	10	10			
		21-30	4	4			
		31-40	E	5			
		Estimate the me	an number of	people.			
	b)	Here is a freque	ncy table shov	ving the r	number	b)	Using midpoints:
		of people on 45	buses.				4.5, 14.5, 24.5 and 34.5, 44.5
		Number of people	e Frequenc	У			Estimated mean $= 18.7$
		0 to 9	20				
		10 to 19	6				
		20 to 29	5				
		30 to 39	8				
		40 to 49	6				
		Estimate the me	an number of	people.			
		Give your answe	er to 1 decimal	l place.			



Averages from a Frequency Table - Mark Scheme

		Question		Answer			
		Exam Questions					
1)	(a)	The frequency tabl number of siblings	e shows the of 25 students.	(a) Mode = 0	(1)		
		Number of siblings	Frequency				
		0	9				
		1	7				
		2	5				
		3	3				
		4 1 Write down the mode:					
	(b)	Find the median:		(b) Median = 1	(1)		
	(c)	Calculate the mean:		(c) $(0\times9)+(1\times7)+(2\times5)+(3\times3)+(4\times1)$	(1)		
				25 Mean = 1.2	(1)		
2)	(a)	The grouped frequency table shows the number of passengers on 100 trains.		(a) $60 \le x < 80$	(1)		
		Number of passengers, x	Frequency				
		0 ≤ x < 20	12				
		20 ≤ x < 40	17				
		40 ≤ x < 60	26				
		60 ≤ x < 80	29				
		80 ≤ x < 100	16				
		Write down the modal class:					
	(b)	Estimate the mean	:	(b) Midpoints 10, 30, 50, 70, 90	(1)		
				$\frac{(12\times10)+(17\times30)+(26\times50)+(29\times70)+(16\times90)}{100}$	(1)		
				= 54	(1)		



Averages from a Frequency Table - Mark Scheme

3)	(a)	The frequency table shows the			$20 \le x < 25$	(1)
		number of people	in 39 swimming			
		sessions at the loca	al swimming pool.			
		Number of people, x	Frequency			
		x < 15	0			
		15 ≤ x < 20	2			
		20 ≤ x < 25	15			
		25 ≤ x < 30	13			
		30 ≤ x < 35	9			
		Write down the m	odal class interval:			
	(b)	Find the class interval containing the			20^{th} item	(1)
		median:			$25 \le x < 30$	
	(c)	Estimate the mean: Give your answer to 1 decimal place.			Midpoints - 17.5, 22.5, 27.5, 32.5	(1)
					$(2 \times 17.5) + (15 \times 22.5)$ + $(13 \times 27.5) + (9 \times 32.5)$	(1)
					1022.5 ÷ 39	(1)
					= 26.21794872	
					= 26.2 (1dp)	(1)

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