

a)

The mean waiting time is 8 minutes.

The waiting times are shown in the table below:

Waiting Time (minutes)	Frequency
5	1
6	3
7	x
8	4
9	7
10	4

Find the value of x .

What is the total of the waiting times?	<table border="1"><thead><tr><th>Waiting Time (minutes)</th><th>Frequency</th><th></th></tr></thead><tbody><tr><td>5</td><td>1</td><td>$1 \times 5 = 5$</td></tr><tr><td>6</td><td>3</td><td>$3 \times 6 = 18$</td></tr><tr><td>7</td><td>x</td><td>$x \times 7 = 7x$</td></tr><tr><td>8</td><td>4</td><td>$4 \times 8 = 32$</td></tr><tr><td>9</td><td>7</td><td>$7 \times 9 = 63$</td></tr><tr><td>10</td><td>4</td><td>$4 \times 10 = 40$</td></tr></tbody></table>	Waiting Time (minutes)	Frequency		5	1	$1 \times 5 = 5$	6	3	$3 \times 6 = 18$	7	x	$x \times 7 = 7x$	8	4	$4 \times 8 = 32$	9	7	$7 \times 9 = 63$	10	4	$4 \times 10 = 40$	
	Waiting Time (minutes)	Frequency																					
	5	1	$1 \times 5 = 5$																				
	6	3	$3 \times 6 = 18$																				
	7	x	$x \times 7 = 7x$																				
	8	4	$4 \times 8 = 32$																				
	9	7	$7 \times 9 = 63$																				
10	4	$4 \times 10 = 40$																					
	$5 + 18 + 7x + 32 + 63 + 40$ $= 7x + 158$																						
How many people waited in total?	$1 + 3 + x + 4 + 7 + 4$ $= x + 19$																						
How can we form an equation for the mean?	$\frac{7x + 158}{x + 19} = 8$																						
How do we solve this to find x ?	$7x + 158 = 8(x + 19)$																						
	$7x + 158 = 8x + 152$																						
	$158 = x + 152$																						
	$6 = x$ $x = 6$																						

b) The mean number of sweets is 3.5.

The numbers of sweets that each person has are shown in the table below:

Number of Sweets	Frequency
1	3
2	1
3	4
4	7
5	x

Find the value of x .

What is the total number of sweets?	<table border="1"><thead><tr><th>Number of Sweets</th><th>Frequency</th><th></th></tr></thead><tbody><tr><td>1</td><td>3</td><td>$3 \times 1 = 3$</td></tr><tr><td>2</td><td>1</td><td>$1 \times 2 = 2$</td></tr><tr><td>3</td><td>4</td><td>$4 \times 3 = 12$</td></tr><tr><td>4</td><td>7</td><td>$7 \times 4 = 28$</td></tr><tr><td>5</td><td>x</td><td>$x \times 5 = 5x$</td></tr></tbody></table>	Number of Sweets	Frequency		1	3	$3 \times 1 = 3$	2	1	$1 \times 2 = 2$	3	4	$4 \times 3 = 12$	4	7	$7 \times 4 = 28$	5	x	$x \times 5 = 5x$
	Number of Sweets	Frequency																	
	1	3	$3 \times 1 = 3$																
	2	1	$1 \times 2 = 2$																
	3	4	$4 \times 3 = 12$																
4	7	$7 \times 4 = 28$																	
5	x	$x \times 5 = 5x$																	
$3 + 2 + 12 + 28 + 5x$ $= 5x + 45$																			
How many people had sweets in total?	$3 + 1 + 4 + 7 + x$ $= x + 15$																		
How can we form an equation for the mean?	$\frac{5x + 15}{x + 15} = 3.5$																		
How do we solve this to find x ?																			

c) The mean number of goals scored by players in a football team in their first four games is 1.25. The numbers of goals scored are shown in the table below:

Number of Goals	Frequency
0	9
1	3
2	0
3	1
4	x
5	0
6	1

Find the value of x .

What is the total number of goals scored?	Number of Goals	Frequency	
	0	9	$9 \times 0 = 0$
	1	3	$3 \times 1 = 3$
	2	0	$0 \times 2 = 0$
	3	1	$1 \times 3 = 3$
	4	x	$x \times 4 = 4x$
	5	0	$0 \times 5 = 0$
	6	1	$1 \times 6 = 6$
	$0 + 3 + 0 + 3 + 4x + 0 + 6$ $= 4x + 12$		
How many people are in the team in total?	$9 + 3 + 0 + 1 + x + 0 + 1$ $= x + 14$		
How can we form an equation for the mean?			
How do we solve this to find x ?			

d)

The mean number of marks achieved in a short test is 5.32.

The numbers of marks achieved are shown in the table below:

Number of Marks	Frequency
3	4
4	x
5	6
6	4
7	3
8	1
9	2

Find the value of x .