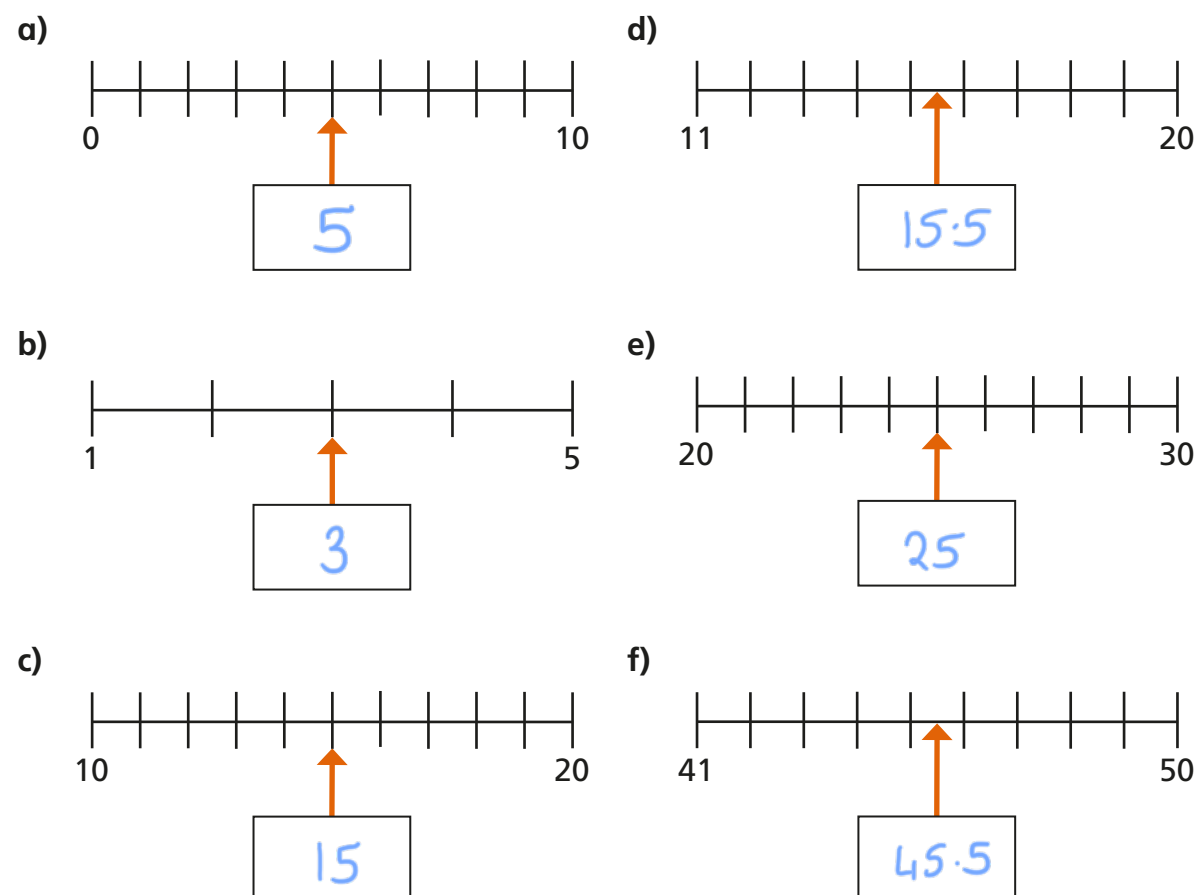


Find the mean from a grouped frequency table

H

1 What number is at the midpoint of each number line?



2 Write the midpoints of the class intervals.

- a) $0 \leq x < 10$ 5 c) $10 \leq x < 20$ 15 e) $20 \leq x < 40$ 30
- b) $1 \leq x < 10$ 5.5 d) $11 \leq x < 20$ 15.5 f) $21 \leq x < 40$ 30.5

3 The table shows Mr Glover's monthly phone bills over two years.
Complete the table.

Phone bill, x (£)	Frequency	Midpoint	frequency $\times$ midpoint
$0 \leq x < 10$	7	5	$7 \times 5 = 35$
$10 \leq x < 20$	9	15	$9 \times 15 = 135$
$20 \leq x < 30$	5	25	$5 \times 25 = 125$
$30 \leq x < 40$	3	35	$3 \times 35 = 105$
	24		400

Complete the calculation to find an estimate of the mean of his phone bills.

$$\text{estimate of mean} \approx \frac{\text{total cost}}{\text{total frequency}} = \frac{400}{24} = £16.67$$

4 The table shows information about the amount of time a group of students spent online one evening.

Complete the table.

Time online, h (hours)	Frequency	Midpoint	frequency $\times$ midpoint
$0 \leq h < 1$	2	0.5	1
$1 \leq h < 2$	12	1.5	18
$2 \leq h < 3$	7	2.5	17.5
$3 \leq h < 4$	5	3.5	17.5
$4 \leq h < 6$	4	5	20
	30		74

Complete the calculation to find an estimate of the mean time spent online.

$$\text{estimate of mean} \approx \frac{\text{total time}}{\text{total frequency}} = \frac{74}{30} = 2.5 \text{ h}$$

- 5 The table shows some information about the masses of 30 pets.

Mass, m (kg)	Frequency		
$0 \leq m < 2$	8	1	8
$2 \leq m < 5$	4	3.5	14
$5 \leq m < 10$	12	7.5	90
$10 \leq m < 15$	5	12.5	62.5
$15 \leq m < 25$	1	20	20
		30	194.5

- a) Work out an estimate for the mean mass of the pets.

6.48 kg

- b) Write the modal class of the masses.

$5 \leq m < 10$

- 6 The table shows some information about the waiting times at a post office one lunchtime.

Waiting time, t (minutes)	$0 \leq t < 3$ 1.5	$3 \leq t < 4$ 3.5	$4 \leq t < 5$ 4.5	$5 \leq t < 10$ 7.5
Frequency	20 30	15 52.5	8 36	2 15

Work out an estimate for the mean waiting time.

$$\frac{133.5}{45} = 2.9666...$$

2.97 min

- 7 The table shows the amount of time people took to get out of an escape room.

Time, t (minutes)	Frequency	Midpoint	
$0 < t \leq 15$	3	7.5	22.5
$15 < t \leq 30$	10	22.5	225
$30 < t \leq 40$	17	35	595
$40 < t \leq 50$	12	45	540
$50 < t \leq 60$	20	55	1,100
		62	2,482.5

- a) Fill in any missing information in the table.

- b) Write the modal class of the time taken.

$50 < t \leq 60$

- c) Work out an estimate for the mean time taken.

40.04 min

- d)



I think the intervals should be $0 \leq t < 15$ not $0 < t \leq 15$, so the answer will be wrong.

Do you agree with Mo? NO

Explain your answer.

It doesn't affect the midpoint and therefore
doesn't affect the estimate of the mean.