

Workout

Question 1: Work out an estimate of the mean for each of these frequency tables.

(a) $340 \div 20 = 17$

Length	Frequency	Midpoint	fx
$0 < L \leq 10$	6	5	30
$10 < L \leq 20$	7	15	105
$20 < L \leq 30$	5	25	125
$30 < L \leq 40$	1	35	35
$40 < L \leq 50$	1	45	45
	20		340

(b) $294 \div 25 = 11.76$

Cost	Frequency	Midpoint	fx
$0 < c \leq 4$	2	2	4
$4 < c \leq 8$	3	6	18
$8 < c \leq 12$	5	10	50
$12 < c \leq 16$	12	14	168
$16 < c \leq 20$	3	18	54
	25		294

(c) $1000 \div 100 = 10$

Length	Frequency	Midpoint	fx
$0 < t \leq 5$	11	2.5	27.5
$5 < t \leq 10$	37	7.5	277.5
$10 < t \leq 15$	43	12.5	537.5
$15 < t \leq 20$	9	17.5	157.5
	100		1000

(d) $2605 \div 40 = 65.125$

Mass	Frequency	Midpoint	fx
$50 < m \leq 55$	3	52.5	157.5
$55 < m \leq 60$	5	57.5	287.5
$60 < m \leq 65$	10	62.5	625
$65 < m \leq 70$	12	67.5	810
$70 < m \leq 75$	10	72.5	725
	40		2605

Question 2: Work out an estimate of the mean for each of these frequency tables.

(a) $710 \div 40 = 17.75$

Duration (years)	Frequency	fx
$0 \leq d < 10$	9	45
$10 \leq d < 20$	13	195
$20 \leq d < 30$	16	400
$30 \leq d < 40$	2	70
	40	710

(b) $4350 \div 80 = 54.375$

Length (cm)	Frequency	fx
$0 \leq L < 30$	8	120
$30 \leq L < 60$	43	1935
$60 \leq L < 90$	25	1875
$90 \leq L < 120$	4	420
	80	4350

(c) $2215 \div 72 = 30.7639$

Mass	Frequency	fx
$20 < m \leq 25$	12	270
$25 < m \leq 30$	24	660
$30 < m \leq 35$	17	552.5
$35 < m \leq 40$	15	562.5
$40 < m \leq 45$	4	170
	72	2215

(d) $41950 \div 300 = 139.83$

Height	Frequency	fx
$120 < h \leq 130$	51	6375
$130 < h \leq 140$	120	16200
$140 < h \leq 150$	66	9570
$150 < h \leq 160$	59	9145
$160 < h \leq 170$	4	660
	300	41950

Estimated Mean

Video 55 on www.corbettmaths.com

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Question 1: Sally is raising money for charity for a fun run.
The table below has been given to her from the website.

Sally says the average donation is £10.
By calculating the estimated mean, decide if you agree with Sally.

$$867.5 \div 100 = 8.675$$

$$\text{£}8.67 / \text{£}8.68$$

The average donation is under £10, so I disagree.

Donation	Frequency
$0 < d \leq 5$	44
$5 < d \leq 10$	35
$10 < d \leq 20$	16
$20 < d \leq 50$	3
$50 < d \leq 100$	2
	100

fx
110
262.5
240
105
150
867.5

Question 2: Nathan delivers pizzas.
The table below shows information about his delivery times.
The pizza company has a promotion that if the delivery time is over 30 minutes, the customer gets their meal for free

(a) Calculate an estimate for the mean delivery time

$$1360 \div 50 = 27.2 \text{ minutes}$$

(b) What percentage of deliveries took over 30 minutes?

$$\frac{23}{50} = 46\%$$

Nathan's manager thinks that the promotion should be changed to 40 minutes

Delivery Time	Frequency
$0 < t \leq 10$	3
$10 < t \leq 20$	10
$20 < t \leq 30$	14
$30 < t \leq 40$	19
$40 < t \leq 50$	4
	50

fx
15
150
350
665
180
1360

(c) Do you agree? Explain your answer.

Yes! Only 8% took over 40 minutes

Question 3: The manager of a small company is calculating the mean salary for his workers.
He has calculated this to be £568,500 per year.
Can you spot any mistakes?

Salary	Frequency	Midpoint	fx
$0 < s \leq 15000$	2	7500 ✓	15000 ✓
$15000 < s \leq 30000$	15	22500 ✓	337500 ✓
$30000 < s \leq 45000$	6	37500 ✓	2250000 ✗
$45000 < s \leq 60000$	2	52500	105000 ✓
$60000 < s \leq 100000$	2	67500 ⁸⁰⁰⁰	135000
	27	27	2842500

160000

842500

Mean salary = $2842500 \div 5 = \text{£}568500$