Managing Finance and Statistics

Using the "Special Offer":

£14.60 + £14.60 + $\frac{1}{2}$ of £14.60

→ £14.60 × 2 + £7.30

= £36.50

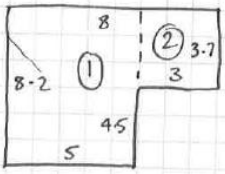
one hutch	?
one bag of food	£7.95
one bag of straw	£2.95
one bag of sawdust	£5.95
	£16.85

From £60 he has £43.15 left to spend on a hutch with 25% off.

Basic Hutch (since cheapest) → 25% of £44.95 = 44.95 ÷ 4
= £11.24

New Price = 44.95 − 11.24
= £33.71

Since John had £43.15 left to pay for a hutch and the hutch costs £33.71, £60 is enough for all 4 items.



Area ① = 5 × 8.2
= 41 m²

Area ② = 3 × 3.7
= 11.1 m²

TOTAL Area = 52.1 m²

Charge = 52.1 × 46
= £2396.60

So, Farida does not have enough money since £2396.60 > £2000

- Friday 1815
- 30 J

2 adults + 4 children

Cheapest method: by Family Ticket + 2 child tickets.

Family Ticket	30.00
2 child tickets	14.40
6 pairs of glasses	6.00
	50.40

Mr and Mrs Melton cannot take their children for £50 since the cheapest is £50.40

Bonus $7.25 \times 88 = £638$

Gross $1350 + 638 = £1988$

Pension 6% of £1988 = £119.28

Deductions $187.42 + 297.59 + 119.28 = £604.29$

Net Pay $1988 - 604.29 = £1383.71$

Basic Rate of Pay = $296 \div 40$
= 7.4

i.e. £7.40

Overtime Pay = £55.50

Overtime Hours = $55.50 \div 7.40 \div 1.5$
= 5

Basic Hours = 35 — 35 × basic rate

Overtime Hours = 4 — + 4 × 1.5 × basic rate

£255.84

So, $35b + 6b = 255.84$

$41b = 255.84$

$(\div 41)$ $b = 6.24$

Basic rate is £6.24 so overtime rate is $6.24 \times 1.5 = £9.36$

Fly High	Anytime	Go Ballooning
£155 × 2 = £310	£138 × 2 = £276	TOTAL = £190
40% = £124	$\frac{1}{3}$ = £92	
TOTAL = 310 − 124 = £186	TOTAL = 276 − 92 = £184	

The cheapest is "Anytime Balloons" at a cost of £184.

1700	meet pilot
1715	inflate balloon
1735	flight
1905	deflate / pack
1945	certificates
1955	minibus
2025	home
2110	

They will not be home by 9pm

Wayne's	New Rooms	Decorate
£9.90 × 2 = £19.80	£10.20 × 12	£6.75 × 12
So, with special offer Joe can buy 3 for £19.80	= £122.40	= £81
4 lots of this gives 12 rolls so,	$\frac{1}{4}$ = £30.60	
£19.80 × 4 = £79.20	TOTAL = 122.40 − 30.60 = £91.80	

Joe should buy from Wayne's Wallpaper since cheapest.

Option A	Option B	Option C
£162	£0.45 × 260 = £117	£58.46
		260 ÷ 13 = 20 Litres
		20 × 1.459 = £29.18
		TOTAL = 58.46 + 29.18 = £87.64

The cheapest option is to hire a car.

"cost per litre"

Option ① $3.99 \div 2 = £1.995$

Option ② $4.99 \div 3 = £1.663$

Option ③ $6.49 \div 4 = £1.6225$

Since the cost per litre is cheapest for option ③ it gives better value for money.

Option ① covers $16m^2 \times 2 = 32m^2$
Option ② covers $14m^2 \times 3 = 42m^2$
Option ③ covers $13m^2 \times 4 = 52m^2$

"cost per square metre" ① $3.99 \div 32 = £0.12$ $(0.1246....)$
② $4.99 \div 42 = £0.12$ $(0.1188....)$
③ $6.49 \div 52 = £0.12$ $(0.1248....)$

Option ② is slightly better it is "cheaper".

£1250 → €1587.50 (1250×1.27)

$-\ 1200$

387.50 left over

€387.50 → £339.91 $(387.50 \div 1.14)$

5 years = 60 months

Moneyback (with protection) = £228.41 × 60

= £13704.60

Cost of loan = 13704.60 − 10000

= £3704.60

$A = 25.78 + 2.24 + 36.45 + 64.17 + 13.25$

$= £141.89$

B = 2.5% of A is £3.55

So, minimum repayment, B, is £5 since $5 > 3.55$.

Over 24 months, without payment protection the monthly repayment is £667.35.

So, the loan repayment = 667.35 × 24 = 16016.40

and the loan will cost her 16016.40 − 15000

= £1016.40

Due: 240 − 7.20 : £232.80

With interest: 1% = £2.328

So, total is £232.80 + £2.328

= £235.128

= £235.13

Total cost of loan = £2339

Total repayment = £10000 + £2339

= £12339

Monthly repayment = £12339 ÷ 60 (since 5 years = 60 months)

= £205.65

So, Finesave without payment protection.

Money Collected	Frequency	(b) Cumulative Freq
0.01 − 5	2	2
5.01 − 10	6	8
10.01 − 15	8	16
15.01 − 20	10	26
20.01 − 25	17	43
25.01 − 30	5	48
30.01 − 35	2	50

Yes, both diagrams have been drawn from the same data set.

On average, fewer cigarettes were smoked per person after the course

The number of cigarettes smoked per person was more varied after the course.

a) 0, 1, 2, 2, 2, 3, 3, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 4, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 6, 6, 6, 6

median

So, median = 4

b) $\frac{14}{30} = \frac{7}{15}$

On average, the number of sit-ups per athlete has risen

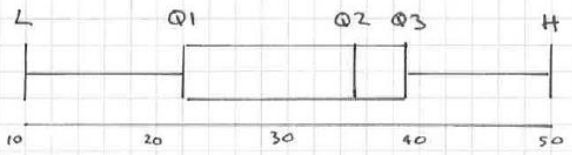
The number of sit-ups is less varied

a) i) 10 15 15 15 20 21 22 22 23 25 25 28 29 30 35 35 36 36 37 38 39 39 39 42 44 44 45 46 47 50

ii)

iii) Q_1 Q_2 Q_3

b) So, L = 10
Q1 = 22
Q2 = 35
Q3 = 39
H = 50



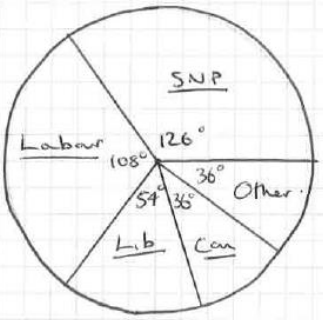
c) On average, the fourth year pupils spend more time on homework.

There is less variation in the times spent on homework in fourth year than in first year.

Angle sizes

SNP $\frac{35}{100} \times 360 = 126°$ Lab $\frac{30}{100} \times 360 = 108°$

Lib $\frac{15}{100} \times 360 = 54°$ Con/others $\frac{10}{100} \times 360 = 36°$



a) i) mean = $\frac{\text{total}}{\text{number}} = 410 \div 5 = 82$

ii)

x	$\bar{x}$	$x - \bar{x}$	$(x-\bar{x})^2$
84	82	2	4
78	82	-4	16
87	82	5	25
80	82	-2	4
81	82	-1	1
			$\Sigma = 50$

s.d. $= \sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}}$

$= \sqrt{\frac{50}{4}}$

$= 3.54$

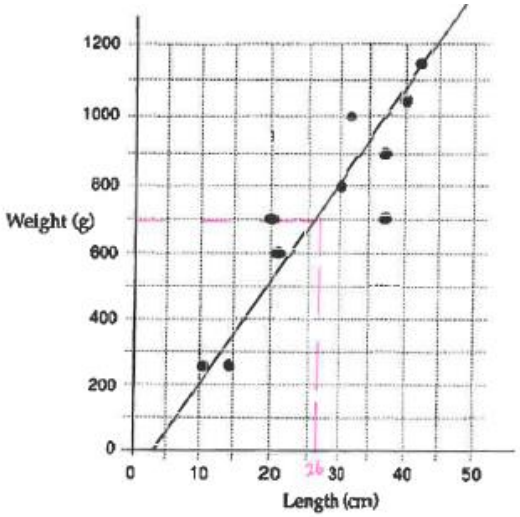
b) comparison table:

Harry	Tony
84	104
78	98
87	107
80	100
81	101

notice all Tony's scores are 20 bigger than Harry's so:

mean = 102 (82+20)

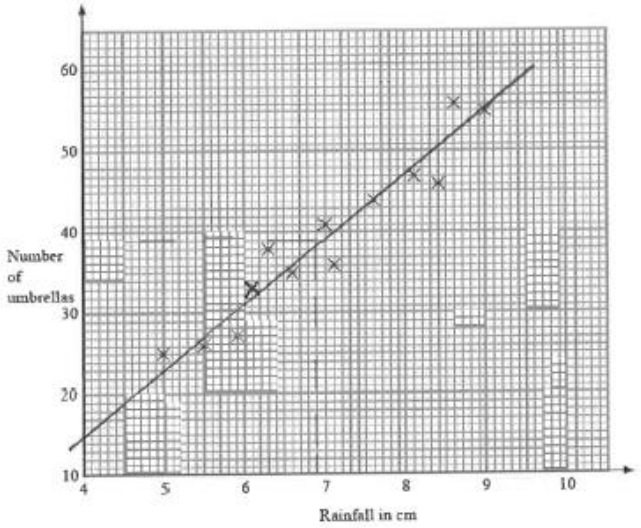
s.d = 3.54 (since no more/less spread out than Harry)



(a) What does the scattergraph tell you about the relationship between the heights and weights of these birds? positive correlation - as the length of the bird increases so to does the weight.

(b) Draw a best fitting straight line on the scattergraph.

(c) Another bird of the same species has length 26 cm.
Use your line to estimate the weight of this bird.
(Show clearly on the diagram how you arrive at your answer). 700g



In January of this year, the rainfall was 6.1 cm.

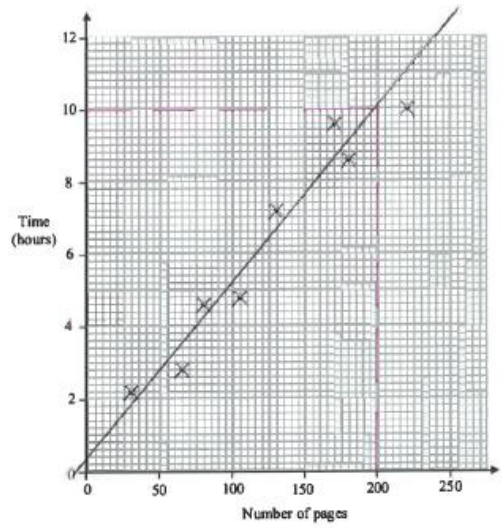
During January, Mr Davies sold 33 umbrellas.

(a) Show this information on the scatter graph.

(b) What type of correlation does this scatter graph show? positive correlation (as rainfall increases so to does umbrellas sold)

In February of this year, Mr Davies sold 39 umbrellas.

(c) Estimate the rainfall for February. 6·9 cm



(a) Describe the relationship between the number of pages in a book and the time Sophie takes to read it.

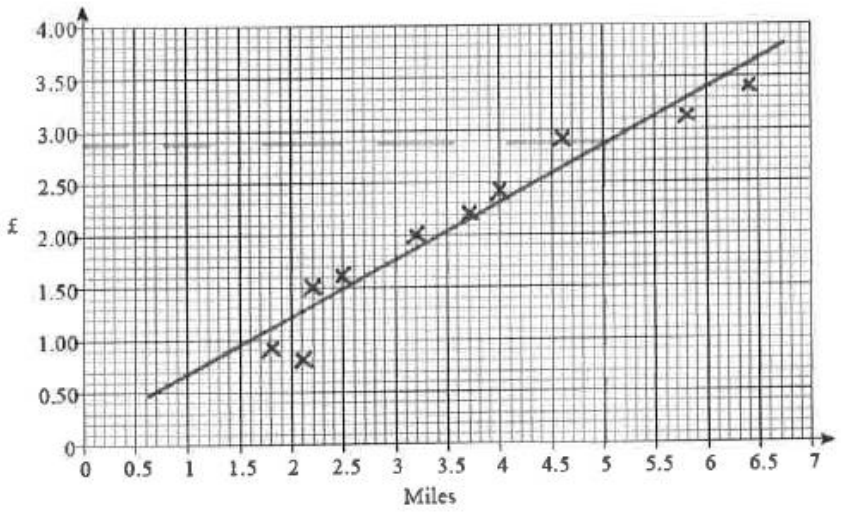
positive correlation (as the number of pages increases so to does time)

Sophie reads another book.
The book has 200 pages.

(b) Estimate the time it takes Sophie to read it.

10 hours

(a) Draw a scatter diagram for the data on the grid below.



(b) Estimate the cost of tram journey of length 5 miles.
Give your answer to the nearest ten pence.

£2.90