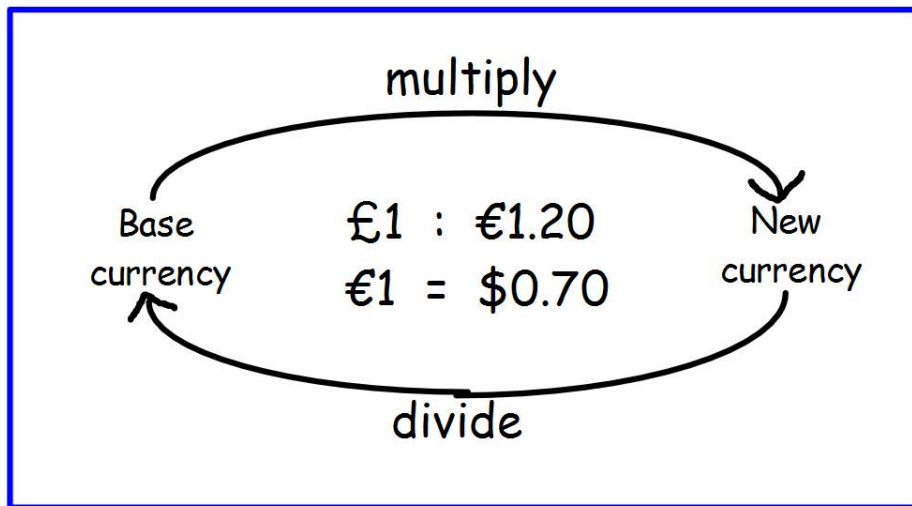


Using exchange rates**Starter**
(Non calculator)**1** Work out $2 \times 4 + 7$ 22 14 15**2** Without using a calculator find 336×13 . 3758 4368 4098**4** Work out $(2 + 3) \times 4 - 1$ 19 15 8**10** Without using a calculator find $22 \cdot 39 \times 7$ $157 \cdot 34$ $149 \cdot 43$ $156 \cdot 73$

Converting Currencies (Exchange Rates)



LS5 problems use exchange rates as parts of larger problems. You may be given information about a holiday plan and have to work out other costs before you can use the exchange rate.

Example 1

James has planned a three week holiday in Canada. He is hiring a car to visit different cities and needs to pay for the hostels as he goes. He has outlined his expenses in the table below.

Expense	Cost (C\$)
Hire Car (per week)	280
Vancouver Hostel	112
Kelowna Hostel	94
Wine Tasting	65
Calgary Hostel	107
Ski Resort Day Trip	219

$\begin{array}{r} 840 \\ 112 \\ 94 \\ 65 \\ 107 \\ 219 \\ \hline 1437 \\ \underline{2} \end{array}$

- a) How much will it cost him for the total holiday?

C\$1437

- b) James changes £1400 at the rate £1 : C\$1.23. How much does he have left for spending money?

$1400 \times 1.23 = \text{C\$}1722$

$\begin{array}{r} 611 \\ 1722 \\ - 1437 \\ \hline 285 \end{array}$

C\$285

- c) When James changes his remaining money back into pounds at home, he has £60.80. The exchange rate to turn the money back is £1 : C\$1.42. How much spending money did he spend during his trip?

$60.80 \times 1.42 = 86.336 \rightarrow 86.34$

285 - 86.34 = C\$198.66

Example 2

Miss Anderson recently went on holiday to Thailand, Cambodia and Vietnam. Cambodia uses the Riel and US dollars.

Currency	We Sell	We Buy
Thai Baht	43.7	48.2
USD	1.29	1.36
Viet. Dong	29244.8	31657.1

'We sell' - foreign rate
'We buy' - going back to pounds.

She initially took £600 and spent:

- 11500 Baht
- \$180
- 4500000 Dong

At the end of the holiday any remaining money was converted back to pounds.

How many pounds did she have left?

Leckie and Leckie Textbook

page 53 shows the currency table
questions start page 54 Q1,2,4,10,11,15,16*,17**,18**







Exercise 4A

- 1 a 134168 J.Yen , 61362 Rupee,
1790 A.Doll
b £271.05
- 2 a €336.20
b CHF 974.40
c €404.20
d £277.85, £658.38, £334.05, £1270.28
- 4 a 195, 206.59, 190.49, 198.41, 212.57
b India cheapest.
- 15 a 734, 3105, 3222
b 3475.53
c £78.30
- 16 a 710
b 70.79
c No: bus would cost £130 but they have
£53.62

- 10 a 2088
b 535.36
- 11 a 609
b 360
c (i) 447.5, 435, 302.5, 41927.5, 370,
410
(ii) 236.77, 240.33, 242, 237.2,
240.26, 239.77
(iii) least return = most agency profit –
Australian dollar.
- 17 £207.11
18 9.13
19 Loss. Sold for equivalent of €538 597.56
Activity – exercise for student.

Changing from multiple currencies

British Pound Exchange Rate		1 GBP
 Australian Dollar		1.75
 Canadian Dollar		1.74
 Euro		1.2
 Japanese Yen		135
 American Dollar		1.33

This table gives us the exchange rates when our base currency is in pounds.

But what if we want to know the exchange rates for euros?

If we want to know what €1 is worth in other currencies, divide the initial values in the table by the new currency.

$$\text{If } \text{£}1 = \text{€}1.20 \text{ -----} \rightarrow 1 \div 1.20 = 0.8333 \text{ -----} \rightarrow \text{€}1 = \text{£}0.83$$

$$\text{If } \$1.33 = \text{€}1.20 \text{ -----} \rightarrow 1.33 \div 1.20 = 1.108 \text{ -----} \rightarrow \text{€}1 = \$1.108$$

Probability

Probability is a measure of likelihood.

Probability can be written as a decimal, percentage or fraction.

E.g The chance of having a baby boy is:

$$P(\text{boy}) = 0.5 = 1/2 = 50\%$$

For example, say I have a bag of sweets. There are 5 blue, 4 green and 3 orange. What is the probability I choose an orange sweet?

$$P(\text{event}) = \frac{\text{no. of times event occurs}}{\text{no. of possible outcomes}}$$

There are 3 yellow, 4 red, 2 blue and 3 orange cubes in a bag.

a) Find the probability that the next cube chosen is red.

$$P(\text{red}) = \frac{4}{12} = \frac{1}{3} = 0.3\dot{3} = 33.3\dot{3}\%$$

$\div 4$ $\div 4$ $1 \div 3$ $\times 100$

b) Another 3 yellow cubes are added to the bag. What is the probability that the next cube chosen is not yellow?

$$P(\text{not yellow}) = \frac{9}{15} = \frac{3}{5} = 0.6 = 60\%$$

$\div 3$ $\div 3$ $3 \div 5$ $\times 100$

Starter

A spinner labelled 1 - 5 is spun, and then a dice labelled 1 - 6 is rolled.

The two scores are multiplied together.

Write down all the different combinations you could spin/roll.

S	D	S	D	S	D						
(1, 1)	(1, 2)	(1, 3)	...	(1, 4)	(1, 5)	(1, 6)					
S	D	S	D								
(2, 1)	(2, 2)			(2, 6)					
S	D	S	D								
(3, 1)	(3, 2)			(3, 6)					
(4, 1)	(4, 2)									(4, 6)	
(5, 1)	(5, 2)	(5, 3)	(5, 4)	(5, 5)	(5, 6)						

A spinner labelled 1 - 5 is spun, and then a dice labelled 1 - 6 is rolled.

The two scored are multiplied together.

Another way we can write the combinations and results down is called a probability space.

		Dice.					
		1	2	3	4	5	6
Spin.	X	1	2	3	4	5	6
	1	1	2	3	4	5	6
	2	2	4	6	8	10	12
	3	3	6	9	12	15	18
	4	4	8	12	16	20	24
5	5	10	15	20	24	30	

A spinner labelled 1 - 5 is spun, and then a dice labelled 1 - 6 is rolled.

The two scored are multiplied together.

Another way we can write the combinations and results down is called a probability space.

		Dice.					
		1	2	3	4	5	6
Spin.	X	1	2	3	4	5	6
	1	1	2	3	4	5	6
	2	2	4	6	8	10	12
	3	3	6	9	12	15	18
	4	4	8	12	16	20	24
5	5	10	15	20	24	30	

- What is the probability of an even score? $P = \frac{22}{30} = \frac{11}{15}$
- What is the probability of a score greater than 15? $P = \frac{7}{30}$
- What is the probability of a score divisible by 3? $P = \frac{15}{30} = \frac{1}{2}$

Expectation: using a given probability to work out an expected value

Example

A retailer orders packets of crisps in boxes of 40.

The probability of a box containing at least one popped packet is 0.007.

How many packets would you expect to be popped in a delivery of 10 boxes?

$$1 \text{ box} \quad 40 \times 0.007 = 0.28$$

$$10 \text{ boxes} \quad 10 \times 0.28 = 2.8$$

We would expect 3 broken packets.

Example continued

In a delivery of 12 boxes, the retailer finds that 4 packets are popped.

Is this more or less than expected?

40 packets in a box

$$p = 0.007$$

$$40 \times 0.007 = 0.28$$

$$12 \times 0.28 = 3.36 \approx 3$$

More than expected $4 > 3$.

page 98

Q 9, 10, 11, 15,

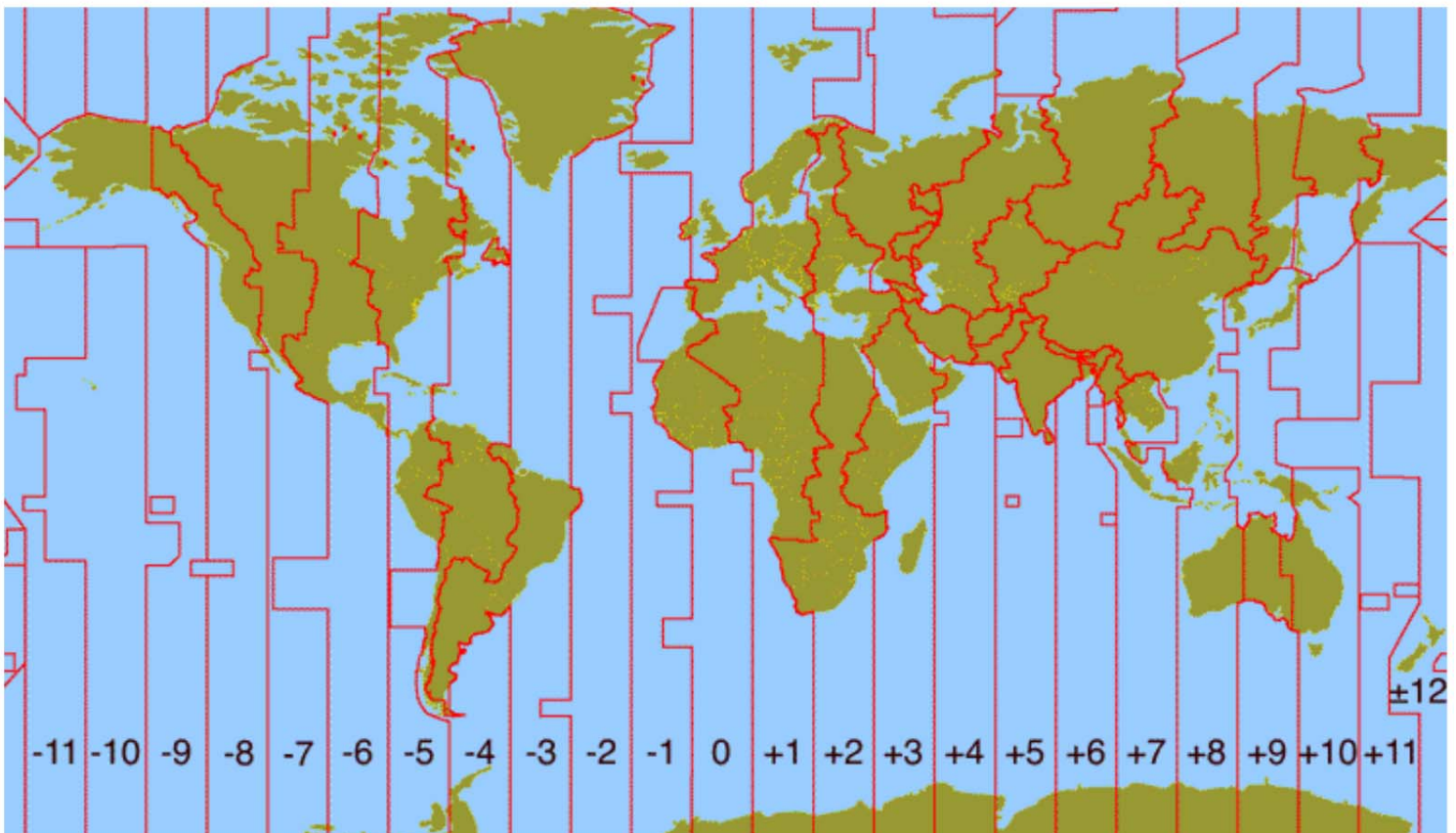
12, 13

4, 3

Finding time differences



What is this map showing us?



An aeroplane leaves London at 12:00pm.

The flight takes 5 hours.

The plane will land at 5:00pm GMT.

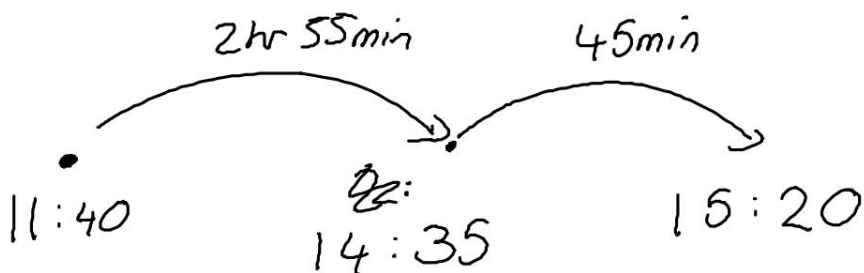
Depending on where you have travelled, there will also be an additional time difference to add on to travel time.

A flight to Madrid from Edinburgh takes 2 hours 55 minutes. It departs at 11:40.

Madrid time is one hour ahead of London time.

It will take 45 minutes from landing to reach the hotel.

What time should you reach the hotel?



+ 1hr → Madrid.

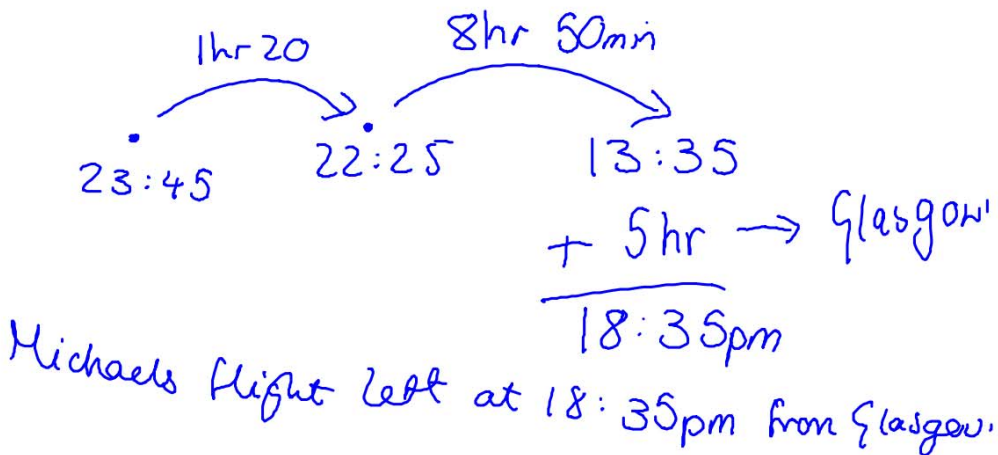
Reach the hotel at 16:20 (Madrid time)

Time Differences & Time Zones

Michael leaves the airport in Florida at 23:45 on Tuesday evening. He wants to call his parents back in Glasgow, however it is still only on 04:45 Wednesday morning.

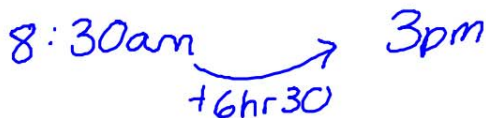
It has taken him 1 hour and 20 minutes to clear immigration, after his 8 hour and 50 minute plane journey.

What time did Michael's flight depart from the UK?



1. Anna's flight leaves from London at 8:30 am to New York.
The flight takes 6 hours and 30 minutes.
Anna wants to phone her mum in England to tell her she has arrived safely.
New York is -5 hours from GMT.

- a) What time is it in England when she lands? 3pm
- b) What time is it in New York when she lands? 3pm - 5hour = 10am.



2. Usain flies from London to Moscow for a business meeting.

The plane leaves London at 1845.

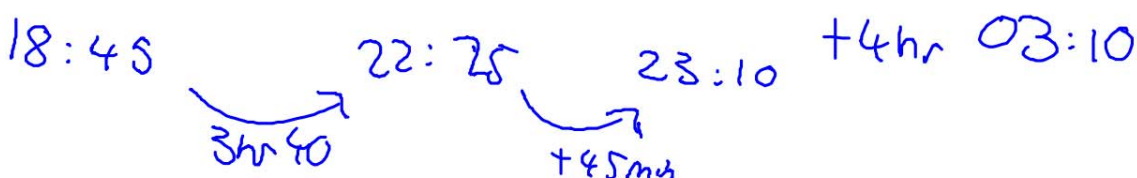
The flight takes 3 hours and 40 minutes.

- * Moscow time is 4 hours ahead of London.

It should take 45 minutes to collect his luggage and clear security.

His company arranges for a driver to collect him from Moscow Airport.

At what time should the driver expect to collect Usain?



COPY
the title

Sharing in a Ratio

Ratios are also used to share out an amount, for example money or food.

Example 1

Arron and Sharon rob a bank.

Sharon drives the getaway car and collects the money while Arron just stands guard.

They getaway with £120,000.

They share the money in the ratio 3:2. How much does each person get?

COPY
the example

Ask yourself 3 questions:

- a) How many shares are there?
- b) How much is 1 share worth?
- c) How much do they each get?

Example 1

COPY
the workings

Arron and Sharon rob a bank.

Sharon drives the getaway car and collects the money while Arron just stands guard.

They getaway with £120,000.

They share the money in the ratio 3:2. How much does each person get?

Step 1: How many shares?

$$3 + 2 = 5 \text{ shares.}$$

Step 2: Value of one share

$$120\,000 \div 5 = 24,000$$
$$1 \text{ share} = \pounds 24\,000$$

Step 3: Amount for each person

$$\begin{array}{r} \text{Sharon} \\ 3 \text{ shares} \end{array} : \begin{array}{r} 24\,000 \\ \times 3 \\ \hline 72\,000 \end{array}$$

$$\begin{array}{r} \text{Arron} \\ 2 \text{ shares} \end{array} : \begin{array}{r} 24\,000 \times 2 \\ = 48\,000 \end{array}$$

Sharon gets £72,000 and Arron has £48,000.

COPY
the example

Example 2

Arron, Sharon and their new friend Darren go in for a bigger job.

They steal £300,000 and decide to share it in the ratio 3:1:2. How do they split it?

Step 1: How many shares?

$$3 + 1 + 2 = 6$$

COMPLETE ✓
the workings

Step 2: Value of one share

$$300\,000 \div 6 = 50\,000$$

Step 3: Amount for each person

$$\text{Arron: } 50\,000 \times 3 = \pounds 150,000$$

$$\text{Sharon: } \pounds 50\,000$$

$$\text{Darren: } 50\,000 \times 2 = \pounds 100,000$$

Indirect proportion

A builder takes 4 hours to build a wall.
How long will it take two builders?



With **indirect** proportion, as one thing increases, the other decreases.

Usually this happens when talking about labour and time or speed and time.

Example

It takes 8 hours for 3 men to paint a fence.

How long would it take 4 men working at the same speed?

$$\begin{array}{l} \div 3 \quad \downarrow \\ 3 \text{ men} : 8 \text{ hours} \\ \downarrow \\ 1 \text{ man} : 24 \text{ hours} \\ \downarrow \\ \times 4 \quad \downarrow \\ 4 \text{ men} : 6 \text{ hours} \end{array} \quad \begin{array}{l} \downarrow \times 3 \\ \downarrow \div 4 \end{array}$$

Example

COPY
notes

A train company has stated that instead of a 3 and a half hour journey, it is now going to aim for 2 and a half. The train used to drive at 80kmph, how much faster will it need to drive to complete the journey in the same time?
new

$$\begin{array}{l} \div 3.5 \left\{ \begin{array}{l} 3.5 \text{ hours} : 80 \text{ kmph.} \\ 1 \text{ hour} : 280 \text{ kmph.} \end{array} \right. \times 3.5 \\ \times 2.5 \left\{ \begin{array}{l} 2.5 \text{ hours} : 112 \text{ kmph.} \end{array} \right. \div 2.5 \end{array}$$

The train needs to drive 32kmph faster than before.

Comparing graphs and charts

You must know how to compare composite bar and line graphs, complete and analyse stem and leaf diagrams and be able to calculate averages and range

The three averages and range

There are three different types of **average**:

MODE
most common

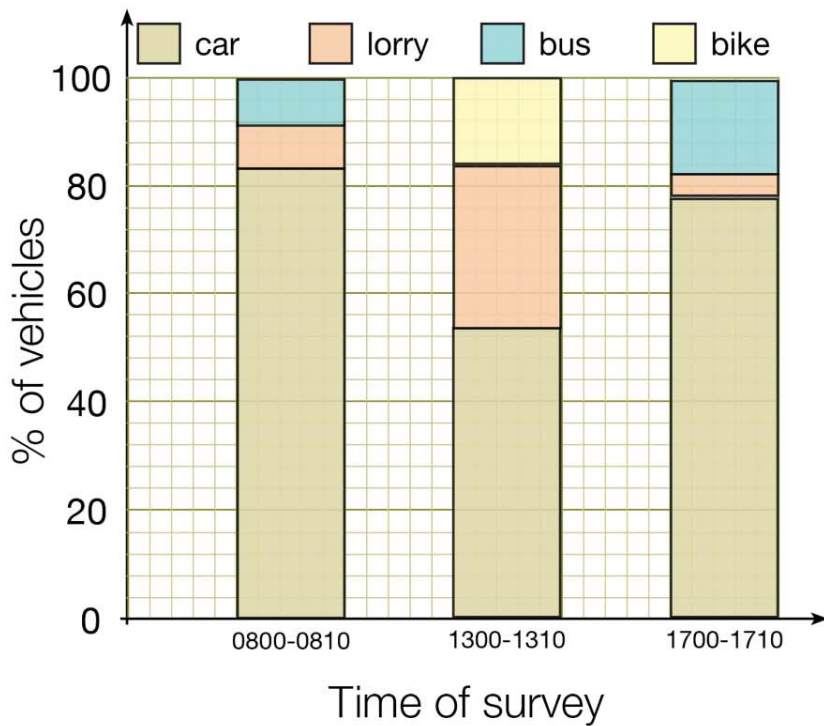
MEAN
$$\frac{\text{sum of values}}{\text{number of values}}$$

MEDIAN
middle value

The **range** is not an average, but tells you how the data is spread out:

RANGE
largest value – smallest value



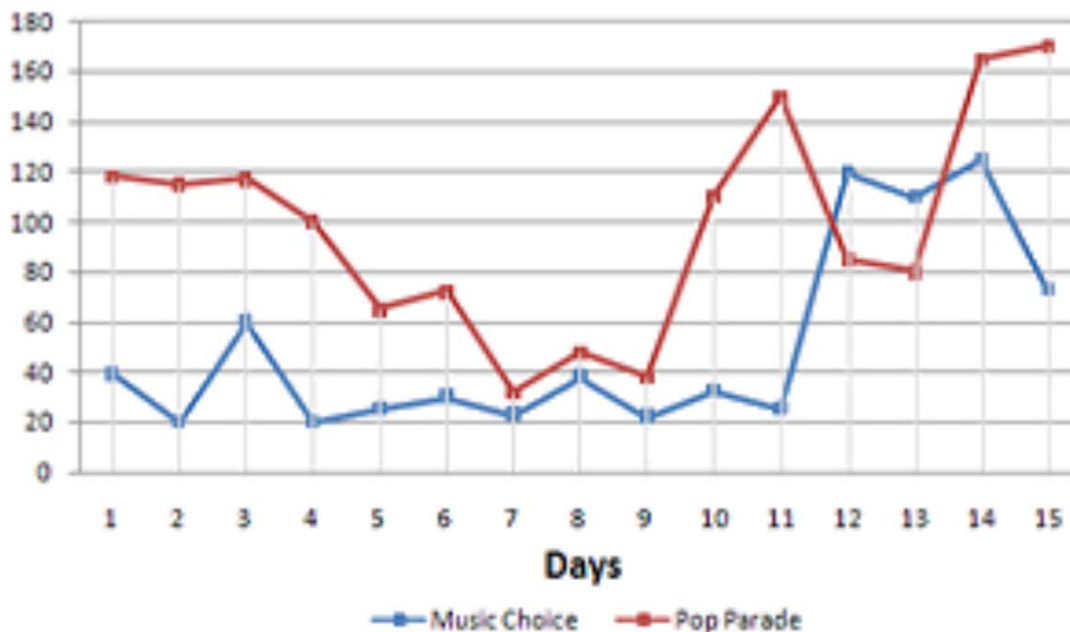


The bar chart shows the type of vehicles crossing the queensferry crossing during one working day.

1) What percentage of vehicles crossing during 1pm and 1:10pm were lorries?

1) 500 vehicles passed over the bridge between 8 and 8:10. How many were busses?

Visits to two new music sites on the web



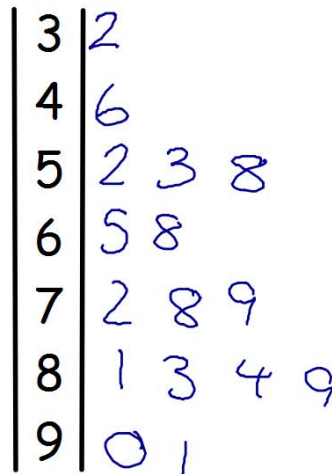
- 1) Which music site had the most visitors?
- 2) Did the popularity of the sites grow after the first few days?
- 3) Compare the mean average viewing of the two sites?

Stem and Leaf Diagrams

Are a way to represent a long list of data.

A class of pupils has 16 girls and 12 boys. They recently took a test, and the girls results are shown below.

~~46~~ ~~32~~ ~~78~~ ~~91~~ ~~84~~ ~~52~~ ~~58~~ ~~79~~
~~68~~ ~~83~~ ~~90~~ ~~72~~ ~~65~~ ~~53~~ ~~89~~ ~~81~~



Key: 3|5 = 35

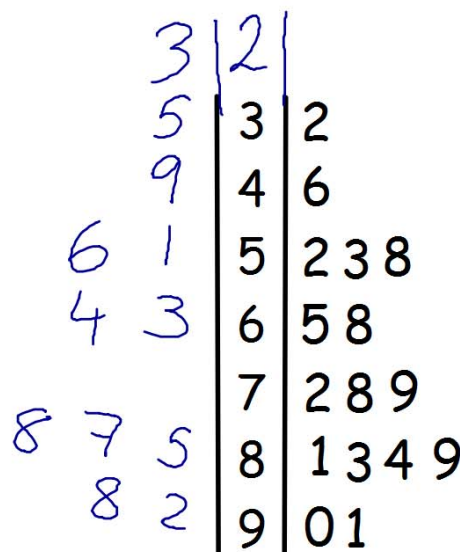
The boys results can also be displayed on the same diagram.

~~64~~ 23 ~~87~~ ~~85~~ ~~56~~ ~~51~~
~~98~~ ~~88~~ ~~92~~ ~~49~~ ~~63~~ ~~35~~

Boys

Girls

Page 88
3 questions



Key: 3|5 = 35

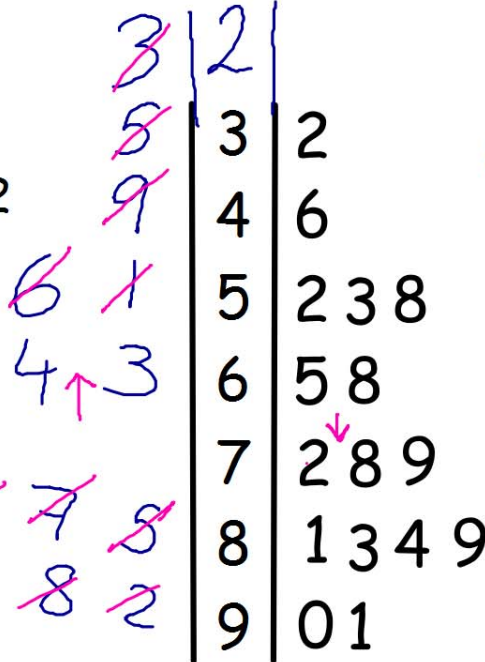
- 1) Find the ranges of both sets of scores.
What does this tell you about the two groups?
- 2) Which group has the highest median average?
- 3) Calculate the mean average of both groups.
Which group did better in the test?

Boys

$$\text{Boys mean} = 703 \div 12 = 58.58$$

The spread of the boys score is more as $75 > 59$.

The average girls score is higher as $70.06 > 58.58$.



Girls

$$\text{Girls mean} = 1121 \div 16 = 70.06$$

Key: $3 | 5 = 35$