

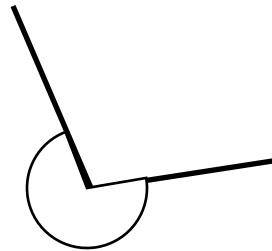
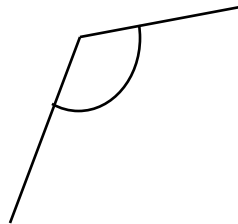
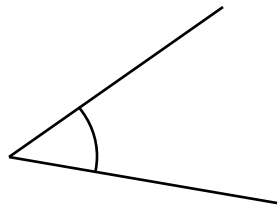
Mean and Range

Learning Objective

- Find the mean and range of a set of quantities

Recap

Can you name these type of angles and their properties?



Range (Max-Min)

Definition

1. Put the numbers in order
2. Take the smallest number away from the largest (Max – Min).

Calculate the range for the following data

Class shoe sizes: 3, 5, 5, 6, 4, 3, 2, 5, 6

Put in order: 2, 3, 3, 4, 5, 5, 5, 6, 6

Smallest number is 2, largest number is 6

$$6 - 2 = 4$$

So the range = 4

Range

Twenty students sat a Maths test. Their marks out of 10 are recorded below. Find the **range** of test results.

2, 5, 9, 3, 7, 8, 6, 3, 4, 3, 2, 7, 9, 5, 8, 7, 2, 5

Mean/Average

Definition

1. Total the numbers
2. Divide the total by the number of numbers (0 counts as a number)

How do we work out the mean for the following data?

Class shoe sizes: 3, 0, 0, 6, 4, 3, 2, 1, 5, 6

Add together: $3 + 0 + 0 + 6 + 4 + 3 + 2 + 1 + 5 + 6 = 30$

Divide by the amount we started with: $30 \div 10 = 3$

So the **mean (average)** is 3.

Your turn....

Q 1 James has a spinner that has sections labelled 1 to 5. He spins the spinner 10 times.

Here are his scores. " " 1 4 4 2 3 4 5 1 4 1

- 1) Calculate the mean
- 2) Calculate the range

Q 2

Here are the ages of 9 children at a birthday party.

10 12 13 10 11 14 15 10 12

1) Calculate the mean

2) Calculate the range

Q 3

A football team played six games.

Here are the number of goals they scored in each game:

6 0 3 2 2 5

- 1) Calculate the mean
- 2) Calculate the range

Q 4

Miss Jones gives her class a test.
The test is out of 40 marks.

Here are their scores.

31 29 20 35 32 38 32

- 1) Calculate the mean
- 2) Calculate the range

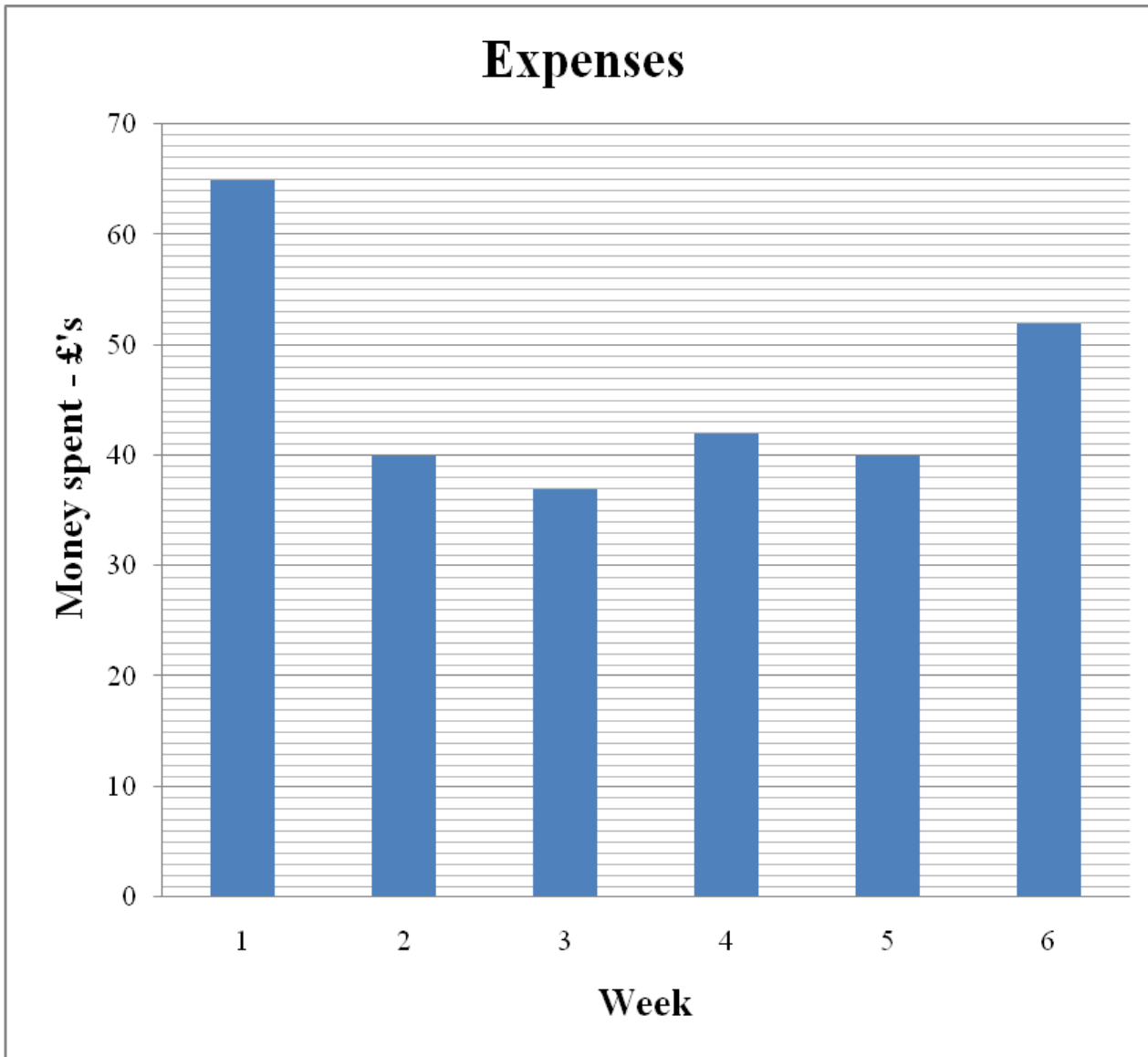
Q 5

A trainee child-care assistant recorded the height of all the children in the group.

Name	Gender	Height in centimetres
Peter	m	97
Joan	f	98
Saliha	f	92
Mateus	m	89
Frances	f	90
Lebo	f	96
Samuel	m	92
Lizzy	f	89
Howard	m	86

What is the difference between the mean height of the boys and the mean height of the girls?

Q 6



A student prepared a chart to show the expenses for the first six weeks of attending a college course.

This included travel, food and study materials.

Calculate the mean amount spent each week.

Q 7

A friend has kept a record of calories consumed over the past week

	Breakfast kcal	Lunch kcal	Evening meal kcal	Daily total kcal
Monday	475	615	785	1875
Tuesday	530	655	765	1950
Wednesday	570	685	780	2035
Thursday	665	635	805	2105
Friday	520	685	890	2095
Saturday	525	735	745	2005
Sunday	435	865	645	1945

Guideline Daily Amounts	
Adults	
Calories	2000kcal

Calculate the mean amount of calories the friend consumes every day. Compare this value with the 'guideline daily' amount of calories.

Q 8

A volunteer worker at the local community recorded the number of Lorries that passed down the village high street in the middle of the day.

Time	Number of Lorries
10:00 to 11:00	HHH
11:00 to 12:00	HHH HHH
12:00 to 13:00	HHH HHH
13:00 to 14:00	HHH HHH
14:00 to 15:00	HHH HHH HHH

Calculate the mean number of Lorries per hour that passed down the high street.

Q 9

In a cold week in December the maximum temperature recorded on each day is given in the table.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
3oC	2oC	-1oC	1oC	1oC	2oC	4oC

What is the range of temperature for this week?

Q 10

One of the members of a fitness club does cross-country running 4 times every week. The range of distances run is 6 miles. When asked, the person said that the shortest distance run is 2 miles.

What is the longest distance the person runs?

Exam Questions

Ian wants a loan.

He uses this information to tell the bank manager about his earnings.

Monthly earnings					
Sept	Oct	Nov	Dec	Jan	Feb
£5 800	£3 600	£4 200	£1 500	£2 000	£2 800

Ian needs to tell the bank manager the range of his earnings and his average monthly earnings.

(b) Calculate the range and average monthly earnings for Ian.

(4)

Use the box below to show clearly how you get your answer.

July 2016

Luke is a member of a rowing club.

The rowing club organises a charity event using indoor rowing machines.

The table shows the time it took Luke to row 10km in 6 training sessions.

Time taken (minutes)	54	52	47	51	45	42
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Luke can enter the rowing event if his mean time to row 10km is less than 50 minutes.

- (a) Is his mean time to row 10km less than 50 minutes?
Show a check of your working.

(4)

Use the box below to show clearly how you get your answer.

The cafe is open 6 days a week.

The manager says he needs to serve a mean number of 65 people a day to make a profit.

This table shows the number of people served in the cafe each day for one week.

	Mon	Tue	Wed	Thu	Fri	Sat
number of people	55	75	72	19	71	125

Jo says the mean number of people served a day is more than 65

(a) Is Jo correct?

Show why you think this.

(3)

Use the box below to show clearly how you get your answer.

Mick completes a total of 5 assessments for his course.

He gets these marks.

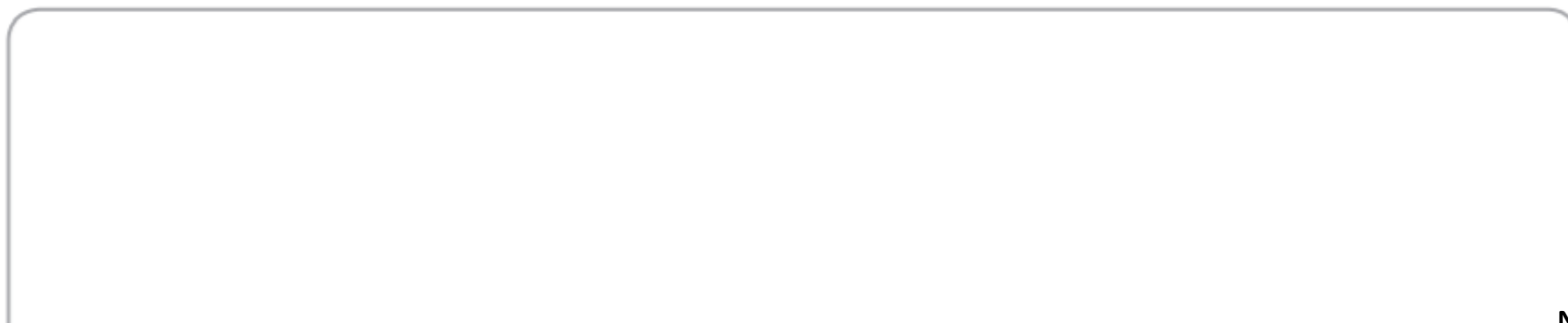
56 42 47 59 48

Mick needs an average mark of 50 or more to pass the course.

Does Mick pass the course?
Show a check of your working.

(4)

Use the box below to show clearly how you get your answer.



Nov 2017

Brian has this information about the number of tickets sold for the last 5 matches.

match	1	2	3	4	5
tickets sold	115	93	158	127	82

Brian says

the average number of tickets sold for the last 5 matches is 105

(a) Is Brian correct?
Show why you think this.

(3)

Use the box below to show clearly how you get your answer.

Alia fills 5 jars with honey from the beehive.
She wants to know the mean weight of the honey in the 5 jars.

jar	1	2	3	4	5
weight of honey (g)	440	460	465	455	450

(a) Work out the mean weight of the honey in the 5 jars.
Show a check of your working.

(4)

Use the box below to show clearly how you get your answer.