



# Level 1 Functional Skills in Mathematics

Teaching Guidance  
Version 1.0 - November 2024



Our specification is published on our website ([www.tguk.org.uk](http://www.tguk.org.uk)). We will let centres know in writing about any changes to the specification. We will also publish changes on our website. The definitive version of our specification will always be the one on our website, this may differ from printed versions.

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# General Information - Disclaimer

This **Teaching Guidance** will help you plan by providing **Examples** of the content of the specification.

It is not, in any way, intended to restrict what can be assessed in the question papers based on the specification.

## Contexts

Underpinning skills questions at Level 1 will normally have no context or a very limited but familiar context and will require minimal reading demand.

Each problem-solving question will involve, as far as is reasonably possible, a familiar but realistic problem based on an equally familiar topic.

## Assumed knowledge

Functional Skills Level 1 assumes all the knowledge and skills from the Entry Level Certificates in Functional Skills.

## Command words

The following command words are the ones we will generally use. For specific purposes we may use other command words.

- **Work out:** this will be the usual instruction when one or more calculations are required to get to the answer.
- **Calculate:** this will be used when the student is expected to use a calculator to carry out a given calculation.

Questions may also include the commands:

- **Show how you decide:** When the question requires the learner to make a decision e.g. Is Alex correct? Which Shop is the Cheapest. Show how you decide means, for example, if Alex is correct and answer of just “Yes” would not achieve any marks without supported working.
- **Show your working:** A correct answer with no working would not achieve full marks. Working needs to be seen.

**1**

# Using numbers and the number system

**Level 1 - using numbers and the number system – *whole numbers, fractions, decimals and percentages***

In this area (identified as UN in our guidance), the Department for Education's guidance<sup>1</sup> expects learners at Level 1 to:

- be able to count in steps of various sizes, including negative numbers
- read, write and understand positive whole numbers to one million
- order and compare whole numbers of any size, and fractions, ratios and decimals and recognise the effect of multiplying and dividing by powers of 10, 100 and 1000
- identify, compare and extend a range of numerical and spatial patterns
- use, understand and calculate with fractions, decimals and percentages

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<sup>1</sup> Department for Education Subject content functional skills: mathematics, published February 2018

**UN1****Read, write, order and compare large numbers (up to one million)****Teaching Guidance**

Learners should be able to:

- read a positive value in number form and write it in words
- read a positive value in word form and write it in number form
- compare positive numbers and know which is the smallest or largest
- order a list of positive numbers from smallest to largest or largest to smallest
- compare positive numbers in context and infer how they should be interpreted.

**Examples**

1 Write three hundred and two thousand in numbers.

2 Write 6734 in words.

3 Put these numbers in order starting with the lowest.

338 349   460 297   38 695   905 502   97 993   189 900

**UN2****Recognise and use positive and negative numbers****Teaching Guidance**

Learners should be able to:

- know that numbers can be positive, negative or zero
- understand negative as less than zero
- compare positive and/or negative numbers in context and infer how they should be interpreted.

**Examples**

1 Work out  $87\,540 - 69\,810$

2 Work out  $2840 \times 5$

3 Work out  $-3 + 5$

4 Harper is going camping and checks the temperature forecast.

Saturday Night	Sunday Night
5°C	-2°C

Harper thinks it will be 3°C colder on Sunday night than on Saturday night.

Is Harper correct?

**Show your working.**

**UN3****Multiply and divide whole numbers and decimals by 10, 100, 1000****Teaching Guidance**

Learners should be able to:

- add, subtract, multiply and divide using commutative, associative and distributive laws
- understand the effect on place value of multiplying by 10, 100 or 1000
- multiply and divide positive and negative numbers with up to 2 decimal places by 10, 100 or 1000
- apply this knowledge to measures and amounts.

**Examples**

- 1 Work out  $704 \times 1000$
- 2 Work out  $0.8 \div 10$
- 3 Work out  $4560 \div 100$
- 4 Work out  $620 \times 1000$
- 5 Work out  $13 \div 10$
- 6 Work out  $65.83 \times 100$
- 7 Work out  $0.432 \times 100$



**UN4****Use multiplication facts and make connections with division facts****Teaching Guidance**

Learners should be able to:

- recognise multiplication and division as inverse operations
- given a multiplication fact, derive the related division facts.

**Examples**

- 1 A company has 45 part-time employees.  
This is  $\frac{1}{9}$  of the total number of employees that work for the company.  
  
How many employees work for the company in total?
- 2  $372 \times 795 = 295\,740$   
Use these numbers to write a calculation that gives an answer of 372

## UN5

# Use simple formulae expressed in words for one- or two-step operations

## Teaching Guidance

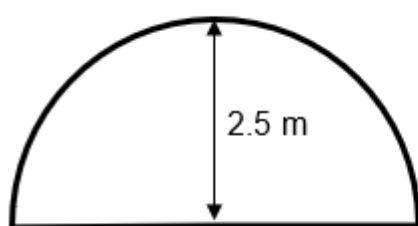
Learners should be able to:

- substitute numerical values into formulae written in words
- carry out suitable operations and manipulations as described in a formula in words which may be unfamiliar to them.

[GCSE Link – A2](#)

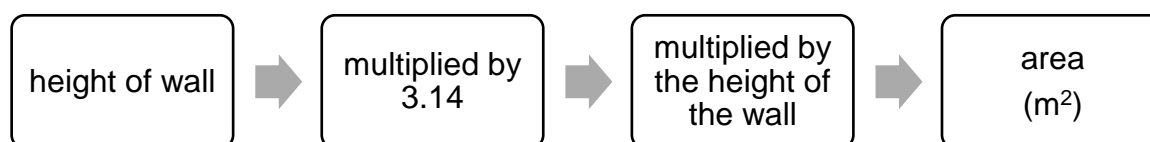
## Examples

- 1 Cameron needs to apply two coats of paint to this wall:



Not drawn to scale

To work out the total area that needs to be painted, Cameron uses this rule:



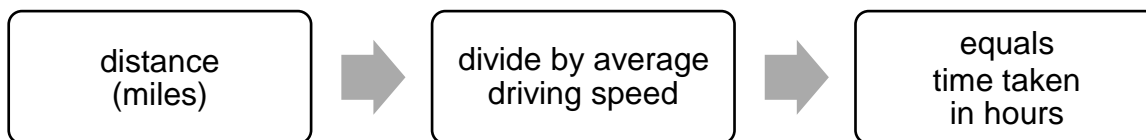
Cameron thinks the total area to be painted is more than  $20 \text{ m}^2$

Is Cameron correct?

Show how you decide.

- 2 Cameron is visiting a friend who lives 70 miles away. Cameron plans to leave home at 10:15 am.  
The average driving speed along the road is 35 miles per hour.

Cameron uses this rule to work out how long it will take to get to their friend's house:



Cameron tells their friend they will arrive by 12:00 pm.

Has Cameron worked out the correct time?

**Show how you decide.**

**UN6****Calculate the squares of one-digit and two-digit numbers****Teaching Guidance**

Learners should be able to:

- know that a number multiplied by itself is a square number
- recall the squares of numbers from 1 to 12
- use standard methods to work out the squares of 2-digit numbers
- use a calculator to work out the squares of 2-digit numbers.

[GCSE Link – N6](#)

**Examples**

- 1 Work out  $5^2$
- 2 Work out  $40^2$
- 3 Work out  $6^2$
- 4 Calculate  $48^2$
- 5 Work out  $8^2$

**UN7****Follow the order of precedence of operators****Teaching Guidance**

Learners should be able to:

- use conventional notation for precedence of operations (including brackets, but not including powers and functions).

**Examples**

- 1 Work out  $42 + 8 \times 6$
- 2 Work out  $20 + 8 \times 2$   
3. Work out  $(15 + 20) \times 2$

## UN8

# Read, write, order and compare common fractions and mixed numbers

## Teaching Guidance

Learners should be able to:

- know and use the word fraction
- know and use the term mixed number
- read a positive fraction or mixed number in number form and write it in words
- read a positive fraction or mixed number in word form and write it in number form
- compare positive fractions and mixed numbers and know which is the smallest or largest
- order a list of positive fractions and / or mixed numbers from smallest to largest or largest to smallest
- compare positive fractions and/or mixed numbers in context and infer how they should be interpreted.

## Examples

- 1 Put these fractions in order starting with the lowest:

$$1\frac{1}{2} \quad 1\frac{5}{6} \quad 1\frac{2}{3} \quad 1\frac{3}{4}$$

Show your working.

- 2 Write five sixths as a fraction in numbers.
- 3 Put these fractions in order starting with the lowest.

$$\frac{3}{4} \quad \frac{2}{5} \quad \frac{1}{2} \quad \frac{6}{10}$$

- 4 Write one and a third as a fraction in numbers.

**UN9****Find fractions of whole number quantities or measurements****Teaching Guidance**

Learners should be able to:

- work out a fraction of a whole number by dividing by the denominator and multiplying by the numerator (or equivalent)
- understand that multiplying an amount by a fraction works out that fraction of the amount
- understand the equivalence of, for example, working out half of an amount and dividing that amount by 2

**Examples**

1 Work out  $\frac{1}{8}$  of 600

**UN10****Read, write, order and compare decimals up to three decimal places****Teaching Guidance**

Learners should be able to:

- know and use the word decimal
- read a positive decimal in number form and write it in words
- read a positive decimal in word form and write it in number form
- compare positive decimal numbers and know which is the smallest or largest
- order a list of positive decimal numbers from smallest to largest or largest to smallest
- compare positive decimal numbers in context and infer how they should be interpreted.

**Examples**

- 1 Put these numbers in order starting with the lowest/highest

4.083      4.5      4.26      4.09



**UN11****Add, subtract, multiply and divide decimals up to two decimal places****Teaching Guidance**

Learners should be able to:

- add or subtract any two or more decimal numbers up to 2 decimal places without a calculator
- multiply or divide any decimal number up to 2 decimal places by an integer without a calculator
- multiply any two decimal numbers up to 1 decimal place without a calculator
- multiply or divide two or more decimal numbers up to 2 decimal places without a calculator.

**Examples**

- 1 Work out  $0.4 + 0.19$
- 2 Work out  $0.18 + 0.3$
- 3 Work out  $9 \times 2.54$
- 4 Lesley needs to cut a 56.2 centimetre (cm) long plank of wood into five pieces of equal length. How long should Lesley cut each piece?
- 5 A community centre is planning a party in the park.

A tent, a table and **two** chairs need to be put next to each other on the edge of the park:

Items	Length in Metres (m)
Tent	3.89 m
Chair	0.59 m
Table	1.50 m

The edge of the park is 10 metres (m) wide.

How much space will be left along the edge of the park?

Give your answer in metres.

**UN12**

## Approximate by rounding to a whole number or to one or two decimal places

### Teaching Guidance

Learners should be able to:

- round numbers and measures to the nearest whole number
- round numbers to 1 or 2 decimal places
- know that in context some answers need to be rounded up and some need to be truncated (for example, if 4.2 buses are needed, the answer is that 5 buses are needed).

[GCSE Link – N15](#)

### Notes

Learners should know not to round values during the intermediate steps of a calculation unless the context requires it.

### Examples

- 1 Round 35.462 to the nearest whole number.
- 2 Round 14.855 to two decimal places.
- 3 Round 0.348 to one decimal place.

**UN13****UN13: Read, write, order and compare percentages in whole numbers****Teaching Guidance**

Learners should be able to:

- read a percentage in number form and write it in words
- read a percentage in word form and write it in number form
- compare percentages and know which is the largest/smallest
- order a list of percentages from smallest to largest or largest to smallest
- compare percentages in context and infer how they should be interpreted.

**Notes**

UN13 must be interpreted as comparing percentages of amounts so it will always be assessed alongside UN14.

**Examples****1 (UN13 and 14)**

Which is larger:

80% of 1200 OR 85% of 1100?

**Show your working.**

**UN14****Calculate percentages of quantities, including simple percentage increases and decreases by 5% and multiples thereof****Teaching Guidance**

Learners should be able to:

- define percentage as “number of parts per hundred”
- work out a percentage of an amount, where the percentage is a multiple of 5%
- solve problems involving percentage increase / decreases
- solve problems involving simple interest in financial mathematics, including over repeated time periods
- understand that a discount is a percentage decrease.

**Notes**

Percentages will be given as multiples of 5% up to 95%

**Examples**

- 1 Rowan is buying a fridge freezer in a sale.  
The original price of the fridge freezer was £360  
The sale reduces the price by 15%.  
How much will Rowan save?
- 2 Work out 5% of 360
- 3 Increase 850 by 10%
- 4 Decrease 576 by 15%

**UN15****Estimate answers to calculations using fractions and decimals****Teaching Guidance**

Learners should be able to:

- in a question where a fraction of a quantity is required, round the quantity to make the calculation easier, for example when asked to estimate one quarter of 7943, rounding 7943 to 8000
- in a question where an amount has to be multiplied or divided by a decimal, round the decimal to make the calculation easier, for example when asked to estimate  $240 \times 4.98$ , rounding 4.98 to 5

[GCSE Link – N14](#)

**Notes**

Learners should only round in calculations when asked for an estimate or when checking the sense of an answer.

**Examples**

- 1 Round both 12.38 and 8.5 to the nearest whole number.

Use your rounded values to **estimate** the answer to  $12.38 \times 8.5$

**Show your working.**

- 2 Estimate 0.34 as a fraction.

Use your fraction to **estimate** the answer to  $0.34 \times 720$

**Show your working.**

- 3 Estimate 0.23 as a common fraction.

Use your fraction to work out an approximate value of  $0.23 \times 840$ .

- 4 Estimate 52% as a common fraction.

Use your fraction to **estimate** 52% of 850.

**Show your working.**

## UN16

## Recognise and calculate equivalences between common fractions, percentages and decimals

### Teaching Guidance

Learners should be able to:

- convert between  $\frac{1}{10}$ , 10% and 0.1 and multiples thereof
- convert between  $\frac{1}{4}$ , 25% and 0.25 and multiples thereof
- convert fractions with a denominator less than 10 into a decimal and percentage (only applies to fractions with a decimal equivalent of 3 decimal places or less).
- express a whole number percentage as a fraction with denominator 100
- convert decimals with one or two decimal places into fractions and percentages

### Examples

- 1 Jude wants to buy a new sofa.

Jude finds the sofa for sale in two shops for the same original price.

**Shop A**

Sofa

Now 15% off

**Shop B**

Sofa

Now  $\frac{1}{8}$  off

Which shop is offering the bigger discount?

Show how you decide.

- 2 Write this fraction:

$$\frac{3}{5}$$

(a) as a decimal

(b) as a percentage.

3 Write this fraction:

$$\frac{5}{8}$$

(a) as a decimal

(b) as a percentage.

## UN17

## Work with simple ratio and direct proportions

### Teaching Guidance

Learners should be able to:

- recognise and use ratio notation in the form  $1:n$  or  $n:1$ , where  $n$  is a number
- relate ratios to fractions
- understand and use simple proportion when working out values
- solve simple best-buy problems by working out the price of individual items.

### Examples

- 1 Leslie and Bo share £560 in the ratio  $1:7$

How much does each person get?

- 2 Alex has this cake recipe:

<u>Cake recipe</u>	
<b>Serves 10 people</b>	
Flour	0.3 kg
Sugar	0.2 kg
Eggs	4
Butter	0.25 kg

How many kilograms (kg) of flour does Alex need to make a cake for 12 people?



**2**

## Using common measures, shape and space

### Level 1 - using common measures, shape and space

In this area (identified as UCM in our guidance), the Department for Education's guidance<sup>2</sup> expects learners at Level 1 to:

- work out simple relationships between common units of measurement to define quantities, also involving mathematical terms for position and direction
- apply and use calculations with common measures including money, time, length, weight and capacity
- visualise, draw and describe 2-D and 3-D shapes and use properties of 2-D shapes in calculations.

**UCM18**

### Calculate simple interest in multiples of 5% on amounts of money

#### Teaching Guidance

Learners should be able to:

- understand the terms 'interest' and 'simple interest'
- work out an amount of interest at a rate which is a multiple of 5%
- work out the total amount after addition of interest at a rate which is a multiple of 5%

#### Examples

- 1 Sam pays £1600 into a new savings account.  
The savings account pays 5% interest each year.  
How much money will be in the savings account after one year?
- 2 Anan pays £1200 into a new savings account.  
The savings account pays 5% interest each year.  
How much money will be in the savings account after one year?

<sup>2</sup> Department for Education Subject content functional skills: mathematics, published February 2018

## UCM19

## Calculate discounts in multiples of 5% on amounts of money

### Teaching Guidance

Learners should be able to:

- understand the terms 'discount', 'decrease' and 'reduction'
- work out a discount, decrease or reduction which is a multiple of 5%
- work out an amount after a discount, decrease or reduction by a multiple of 5%

### Examples

- 1 A shirt normally costs £42  
It is on sale with a 30% discount.  
Calculate the new cost of the shirt.
- 2 Decrease £42 by 30%.

**UCM20****Convert between units of length, weight, capacity, money and time, in the same system****Teaching Guidance**

Learners should be able to:

- convert between metric measures
- recall and use conversions for metric measures for length, weight and capacity
- recall and use conversions between seconds, hours and days

**Notes**

Conversion between imperial measures other than time will only be tested if conversion factors are given in the question. Learners should be able to work in imperial units such as inches, miles and ounces.

**Examples**

- 1 Morgan reads that an adult should drink 1.2 litres of water each day.  
Morgan drinks 8 cups of water each day.  
Each cup holds 160 ml of water.  
Does Morgan drink enough water?  
**Show how you decide.**

- 2 Calculate the total of this shopping list:

Item	Price
Milk	90p
Eggs	£2.54
Bread	36p
<b>Total    £</b>	

Give your answer in pounds (£).

- 3 Jesse catches the 10:45 am train to visit Kai.

The train ride will take  $1\frac{1}{4}$  hours.  
 It is then a 30-minute walk to Kai's house.  
 Jesse expects to get to Kai's house before 12:45 pm.  
 Is Jesse correct?  
**Show how you decide.**

- 4 Convert 50 pence into pounds (£).

- 5 Riley is cooking food.  
 The instructions for preparing the food say:

- cook the food for 150 minutes
- leave to stand for  $\frac{1}{4}$  of an hour.

How long will it take to prepare the food in total?  
 Give the units in your answer.

- 6 Sam needs to feed some animals on a farm.  
The list below shows how much animal feed is needed:

Enclosure A	5.45 kilograms
Enclosure B	950 grams
Enclosure C	800 grams

Sam thinks less than 7000 grams of animal feed are needed.

Is Sam correct?

**Show how you decide.**

- 7 Nilam has a doctor's appointment at 11:20 am.  
The bus ride takes 45 minutes.

It is then a  $\frac{1}{4}$  of an hour walk to the doctor's clinic.

Can Nilam get to the appointment in time by catching the 10:35 am bus?

**Show your working.**

- 8 Convert 1625 grams (g) into kilograms (kg).
- 9 Convert 1050 pence into pounds.
- 10 Ash records the time spent on different activities in a day:  
**Travel:** 1 hour 15 minutes  
**Eating:**  $1\frac{2}{3}$  hours  
**Exercise:** 90 minutes  
Ash thinks the most time is spent on exercise.  
Is Ash correct?  
**Show how you decide.**

**UCM21****Recognise and make use of simple scales on maps and drawings****Teaching Guidance**

Learners should be able to:

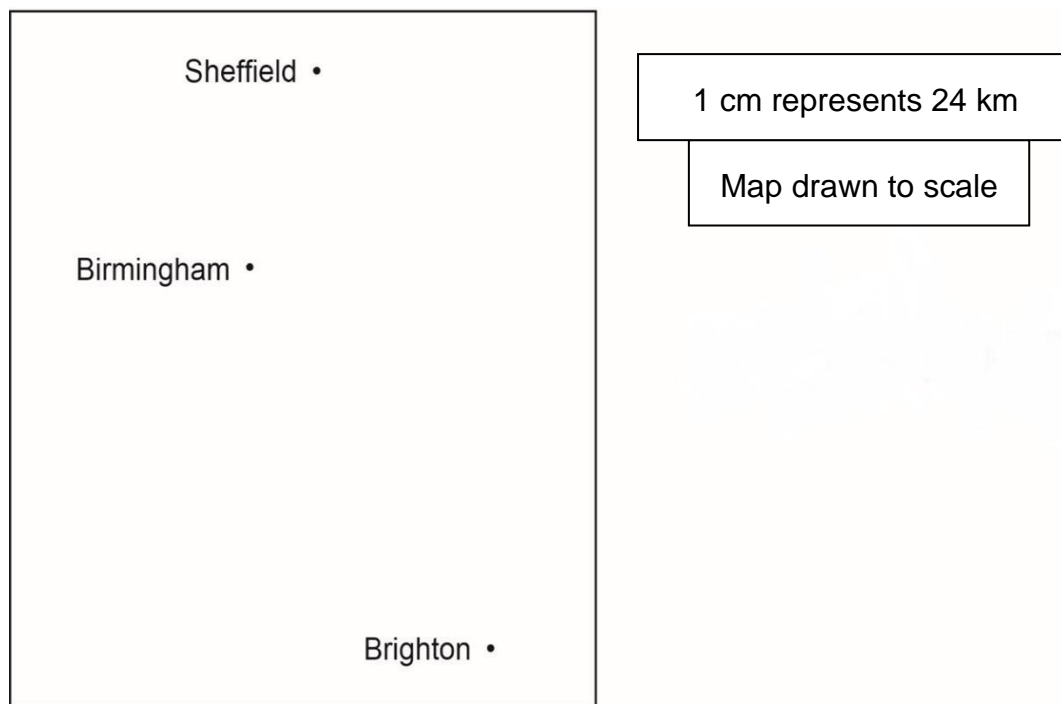
- use and interpret simple maps and scale drawings
- use a simple scale on a map to work out an actual length
- construct a simple scale diagram.

**Examples**

- 1 2 centimetres (cm) represents 2400 metres (m) on a map.  
What distance does 3 cm represent?  
Give your answer in metres.
- 2 6 centimetres (cm) represents 24 kilometres (km) on a map.  
What does 8 cm represent?

- 3 The map shows the location of three UK cities.

Charlie thinks Brighton and Sheffield are over 198 km apart in a straight line on the map.



Is Charlie correct?

**Show how you decide.**

## UCM22

## Calculate the area and perimeter of simple shapes including those that are made up of a combination of rectangles

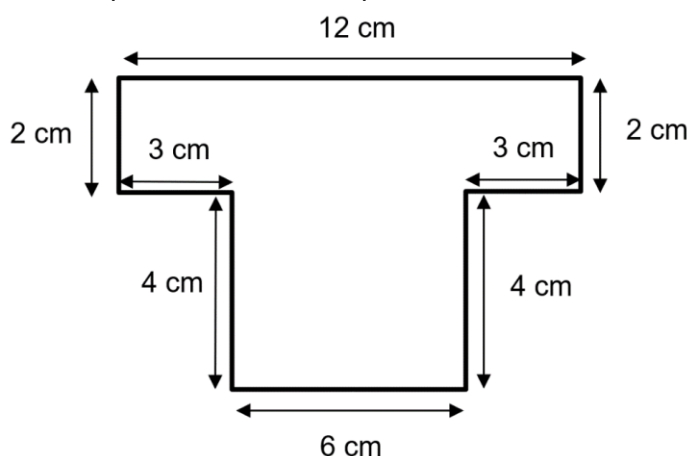
### Teaching Guidance

Learners should be able to:

- recall and use the formula for the area of a rectangle
- know that area is measured in square units
- know that the perimeter of an object is the sum of the lengths of its external edges
- know that perimeter is a length
- know how to calculate the area of a compound shape made of rectangles
- know that an L-shape is made of two rectangles
- calculate the area of a compound shape given the areas of its component shapes
- calculate the area of shapes drawn on a grid.

### Examples

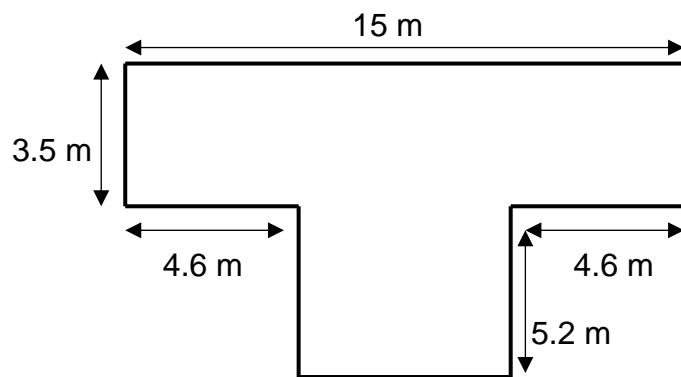
- 1 Work out the area of a rectangle with a length of 6 cm and a width of 4 cm.
- 2 Work out the area of a square with a side length of 8 cm.
- 3 Work out the perimeter of this shape:



Not drawn to scale



- 4 Harper needs to put a fence around this garden:



Not drawn to scale

Harper thinks the total length of fence required will be less than 50 metres (m).

Is Harper correct?

**Show how you decide.**

## UCM23

## Calculate the volumes of cubes and cuboids

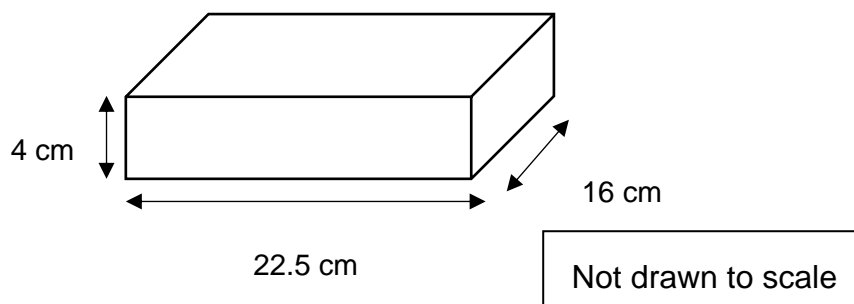
### Teaching Guidance

Learners should be able to:

- recall and use the formula for the volume of a cuboid or cube
- know that volume is measured in cubic units.

### Examples

- 1 Work out the volume of this cuboid.



- 2 Work out the volume of a cube with a side length of 5 centimetres (cm).

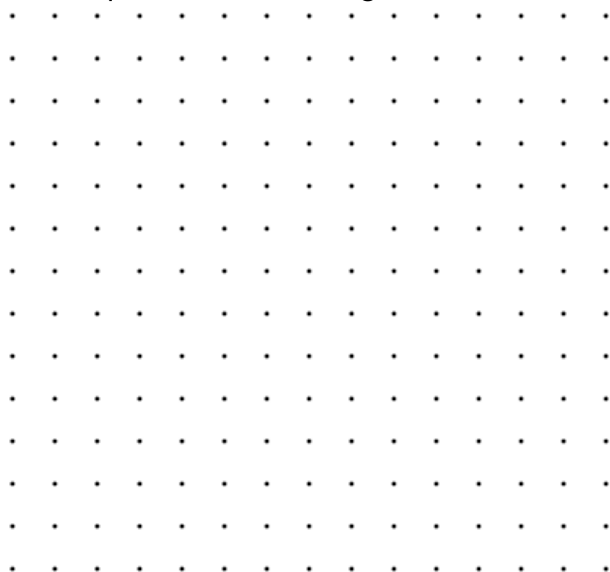
**UCM24****Draw 2-D shapes and demonstrate an understanding of line symmetry and knowledge of the relative size of angles****Teaching Guidance**

Learners should be able to:

- create accurate representations of common 2-D shapes
- know and compare the types of angle sizes – acute angle, right angle, obtuse angle and reflex angle
- identify and mark lines of symmetry on a shape
- deduce the properties of shapes from their symmetries.

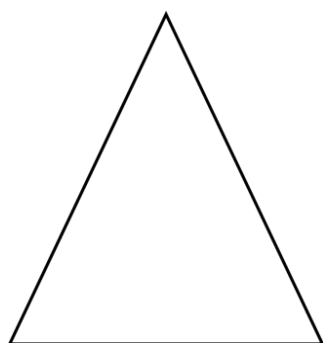
**Examples**

- 1 Draw a quadrilateral on this grid:

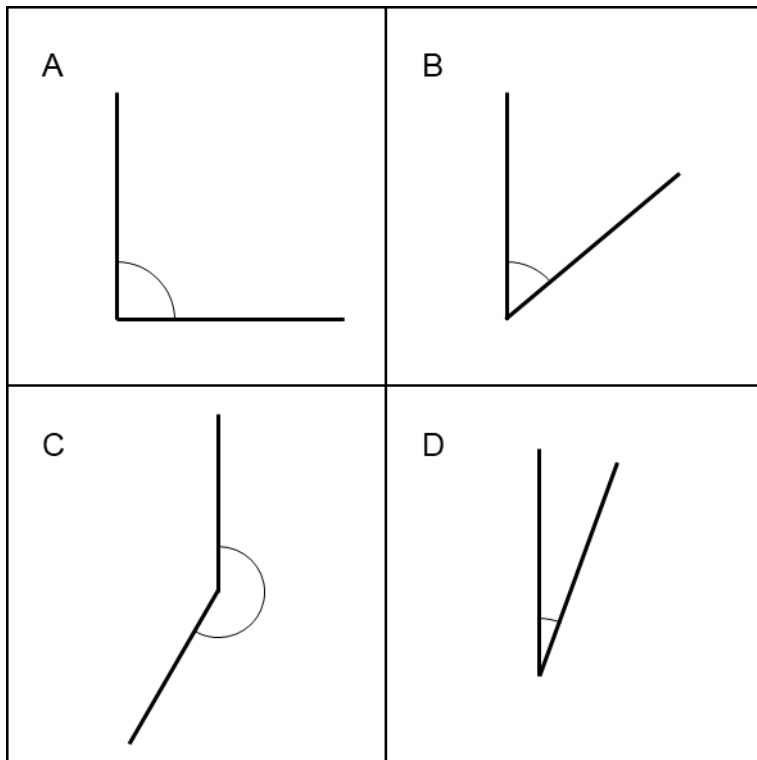


- 2 This is an isosceles triangle.

How many lines of symmetry does this shape have?



3 Which of these angles is greater than a right angle?



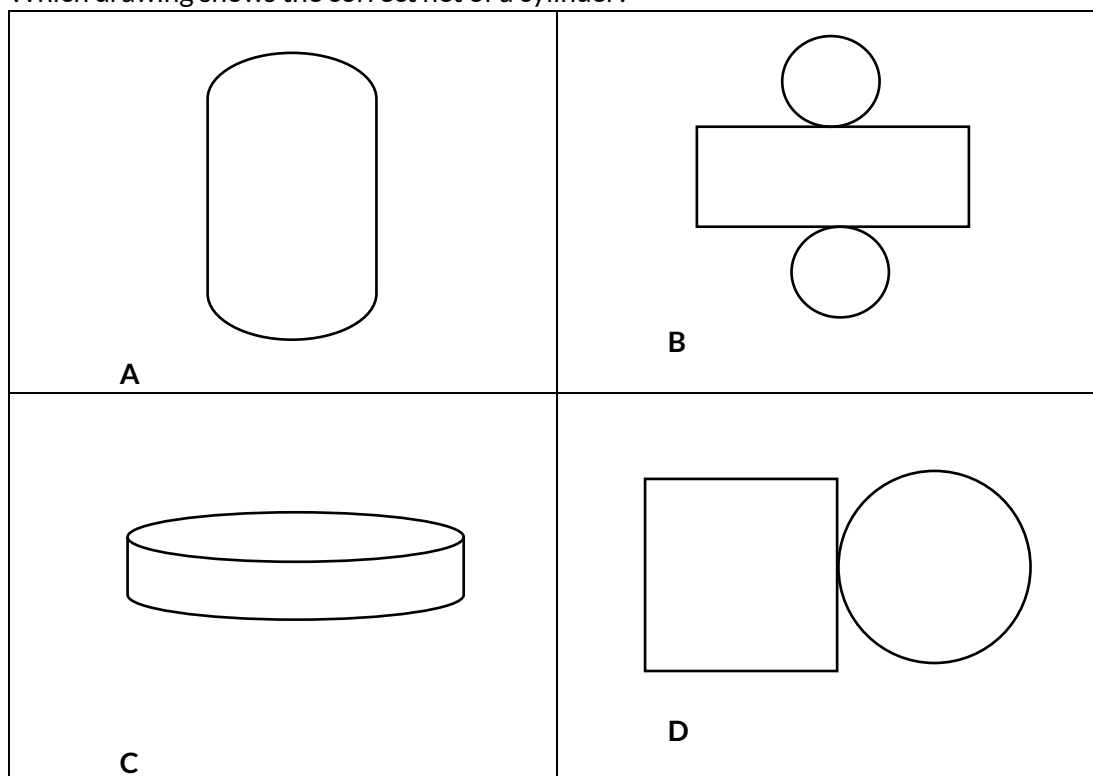
**UCM25****Interpret plans, elevations and nets of simple 3-D shapes****Teaching Guidance**

Learners should be able to:

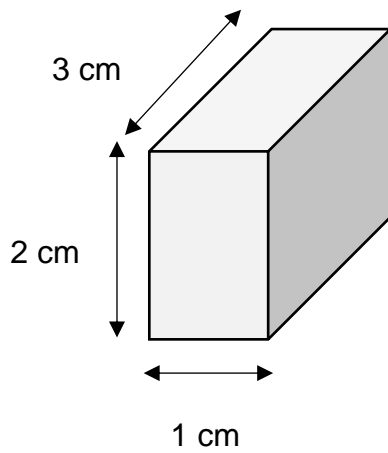
- mark a net with the corresponding position of a face on a drawing of a cuboid
- match a net to a shape
- know if a given net will make a particular 3-D shape
- match plans and elevations to their corresponding shape
- know what plans and elevations are and apply this knowledge to problems
- use a plan to show a required arrangement of items.

**Examples**

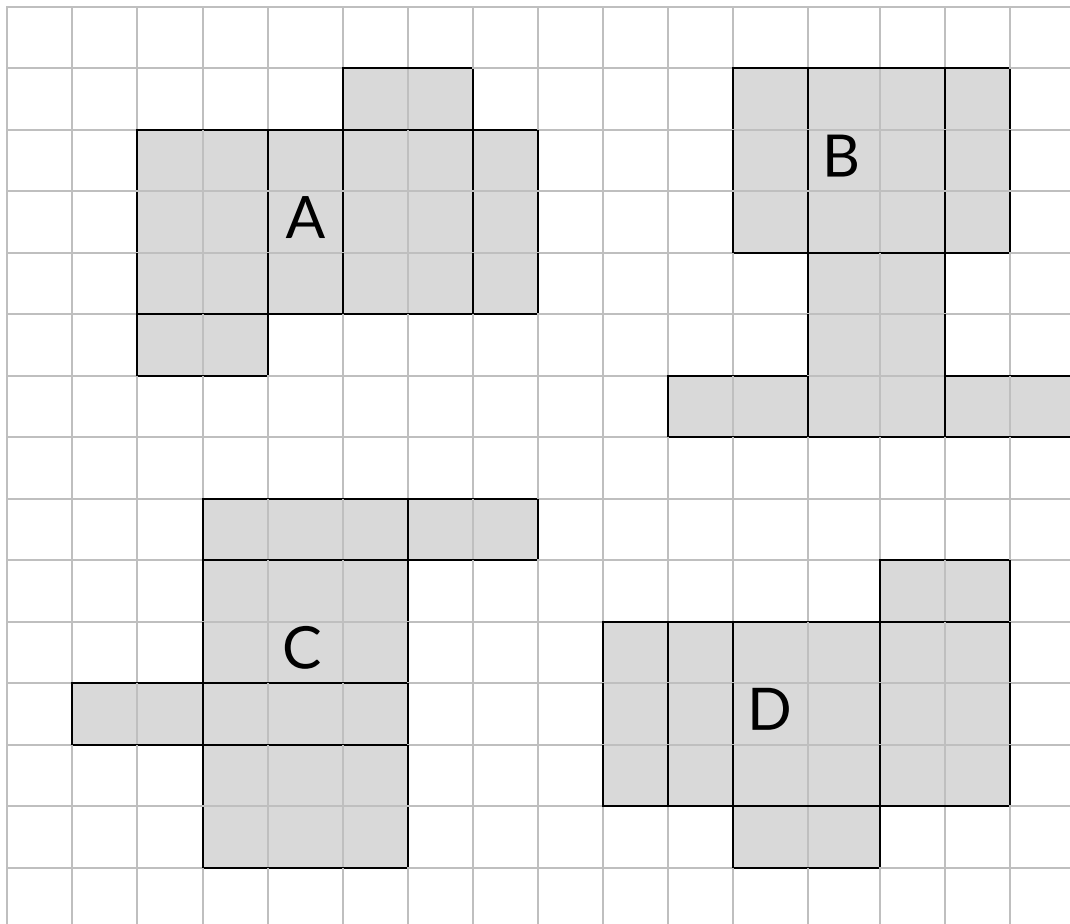
1 Which drawing shows the correct net of a cylinder?



- 2 Which **two** of the following diagrams are an accurate representation of a net of this cuboid?



Nets drawn on centimetre grid



## UCM26

## Use angles when describing position and direction, and measure angles in degrees

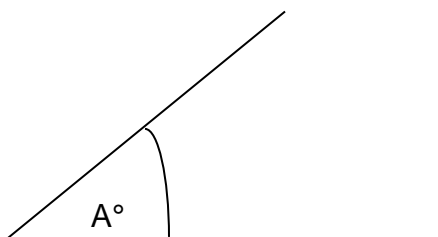
## Teaching Guidance

Learners should be able to:

- give directions such as “Turn  $45^\circ$  to the left”
- use a protractor to measure angles accurately
- know that a complete turn has  $360^\circ$ , that a half turn has  $180^\circ$  and that a right angle is equivalent to a quarter turn and has  $90^\circ$
- know the points of the compass and apply angles to them, e.g. know that North and West are separated by a  $90^\circ$  turn anticlockwise and that South and South West are separated by a  $45^\circ$  turn clockwise.

## Examples

- 1 Measure the size of angle A.



- 2 What size angle is a clockwise turn from East to Southeast?

- 3 Jesse is facing southeast.

Jesse then turns clockwise to face southwest.

What angle has Jesse turned through?

# 3

## Handling information and data

### Level 1 - handling information and data

In this area (identified as HID in our guidance), the Department for Education's guidance<sup>3</sup> expects learners at Level 1 to:

- be able to select, construct and interpret a range of statistical diagrams in various contexts
- select and use methods and forms to present and describe outcomes
- extract and interpret information from tables, diagrams, charts and graphs
- apply simple statistics and recognise features of charts to summarise and compare sets of data
- recognise and use the probability scale and interpret probabilities.

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<sup>3</sup> Department for Education Subject content functional skills: mathematics, published February 2018



**HID27****Represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs****Teaching Guidance**

Learners should be able to:

- complete a frequency table given a set of discrete data
- draw and interpret bar charts
- draw and interpret vertical line charts
- draw and interpret pie charts, where the sectors are simple fractions of  $360^\circ$
- interpret and complete Venn diagrams (learners will NOT be asked to draw a Venn diagram from scratch)
- understand which of the diagrams are appropriate for different types of data.

**Examples**

- 1 The table below shows how 90 people get to work:

Mode of transport	Number of people	Size of angle
Car	40	
Bus	30	
Train	15	
Walk	5	
<b>Total</b>	90	

Show this information on a pie chart.

- 2 Luca is going on holiday to Spain.

The table below shows the temperature in Spain over the last 4 days:

Day	Monday	Tuesday	Wednesday	Thursday
Temperature °C	18°C	24°C	28°C	22°C

Use this information to create a line graph.

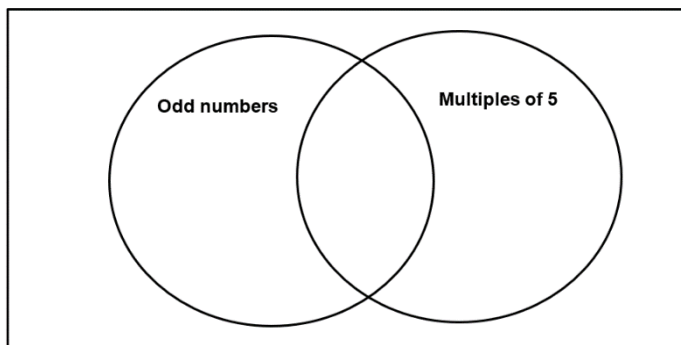
- 3 A household keeps a record of how much they spent on gas from January to June last year.

January	February	March	April	May	June
£86	£88	£71	£73	£65	£61

Represent this data in a line graph.

- 4 Use these numbers to complete the Venn diagram below:

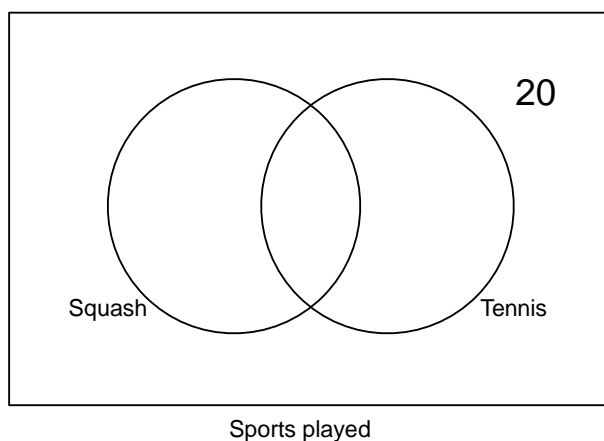
1 2 3 4 5 6 7 8 9 10



5 There are 60 members of a Sports Club.

- 17 people play squash in total.
- 5 people play both tennis and squash.
- 20 people play neither squash nor tennis.

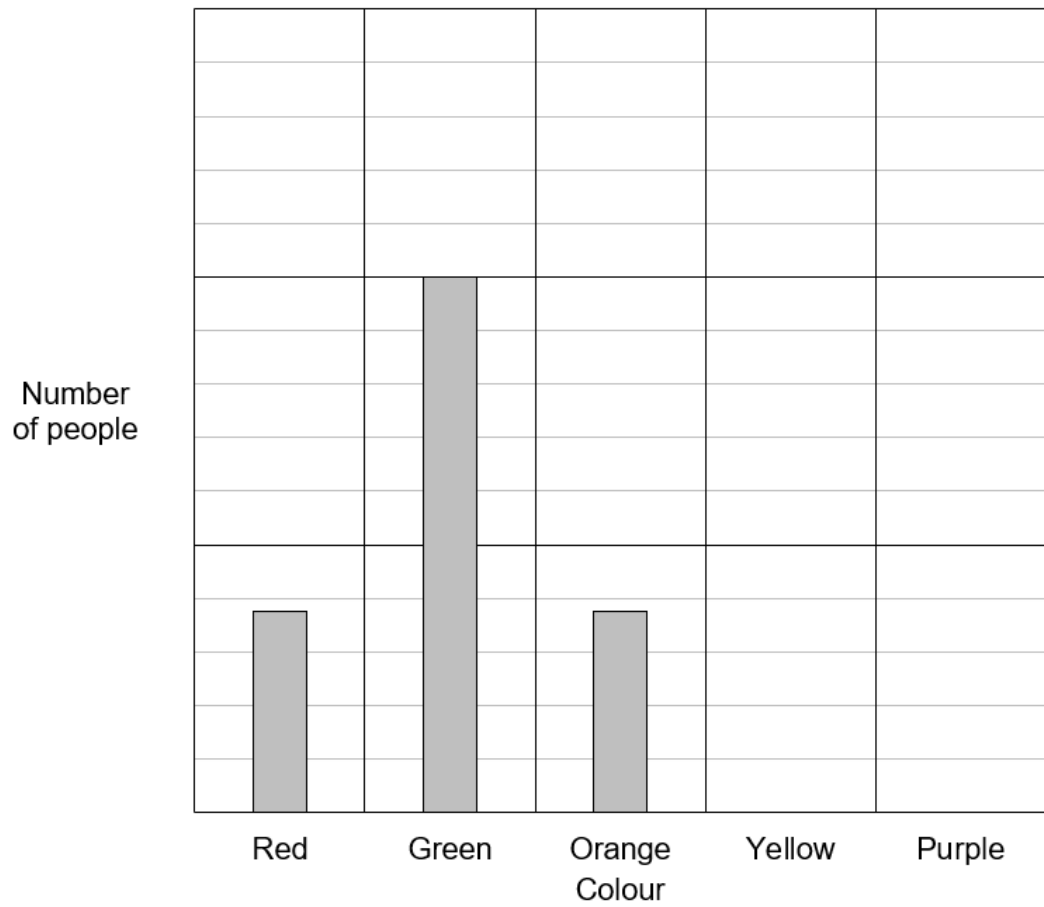
Use this Venn diagram to work out how many members play tennis.



6 The table shows the colours of different sweets in a packet:

Colour	Number
Red	3
Green	8
Orange	3
Yellow	9
Purple	4

Use this information to complete the bar chart.

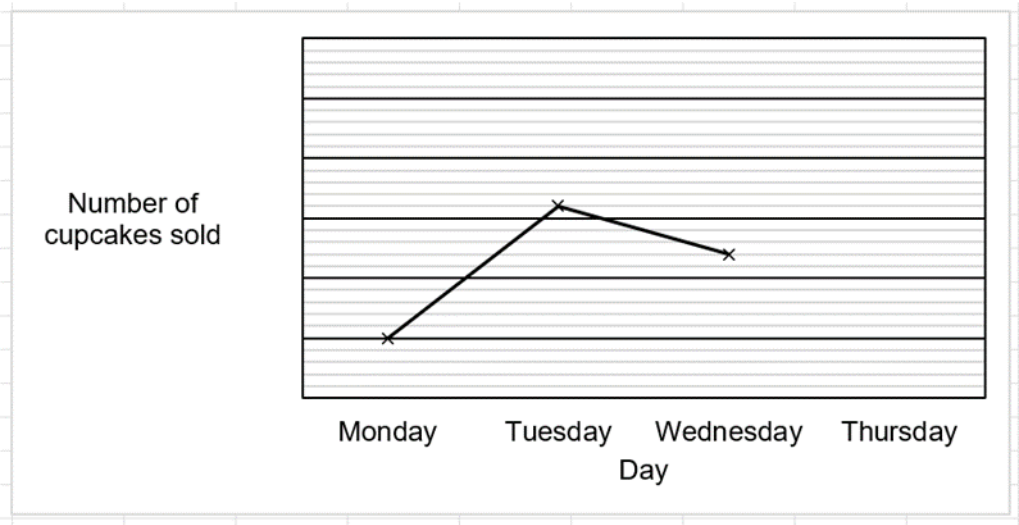


7 Alex is a delivery driver.

The table shows how far Alex travelled over the last 4 days:

Day	Monday	Tuesday	Wednesday	Thursday
Distance travelled	20 miles	64 miles	48 miles	98 miles

Use this information to complete the line graph.



## HID28

## Group discrete data and represent grouped data graphically

### Teaching Guidance

Learners should be able to:

- construct a frequency table for grouped data
- draw and interpret a bar chart for grouped data (not a histogram with equal widths).

### Notes

A bar chart for grouped data should have labels such as 1-3, 4-6, 7-9, etc.

### Examples

- 1 Use this data to complete the grouped frequency table below:

2	42	33	18	21
35	19	40	24	37
26	20	25	59	39

Group	Frequency
1 - 20	
21 - 40	
41 - 60	
<b>Total</b>	

- 2 12 people in an office took part in a charity run.

The tables show how much money each person raised:

Person	Money raised
A	£31
B	£2.20
C	£25.10
D	£1.60
E	£25.40
F	£1.70

Person	Money raised
G	£15.70
H	£1.70
I	£46.90
J	£5.50
K	£32.90
L	£31.40

Use the information to complete the grouped frequency table.

Money raised	Frequency
£0 - £9.99	
£10 - £19.99	
£20 - £29.99	
£30 - £39.99	
£40 - £49.99	

- 3 The table shows the age range in years of 18 people in a drama group.

Age in years	Frequency
1-10	2
11-20	6
21-30	8
Total	16

Use this information to complete the bar chart. (Bar chart given)

## HID29

## Find the mean and range of a set of quantities

### Teaching Guidance

Learners should be able to:

- work out the mean of a set of values
- know that the mean is an average
- use the maximum and minimum values of a set of data to work out the range
- compare two means and decide which mean is higher / lower
- compare two ranges and decide which mean is higher / lower.

### Examples

- 1 Calculate the range of these numbers:  
2500    8200    9850    1050    7390

- 2 Work out the range of these numbers:  
18 259    20 912    16 879    25 050    24 250

- 3 A coffee shop tests six cups of coffee to find the perfect temperature.

The temperatures were:

23°C	44°C	68°C
68°C	65°C	44°C

The manager thinks the mean temperature is more than 50°C.

Is the manager correct?

**Show how you decide.**



**HID30**

Understand probability on a scale from 0 (impossible) to 1 (certain) and use probabilities to compare the likelihood of events

**Teaching Guidance**

Learners should be able to:

- know the language of descriptive probabilities – impossible, unlikely, equally likely (even chance), likely and certain
- compare the probability or likelihood of two or more outcomes

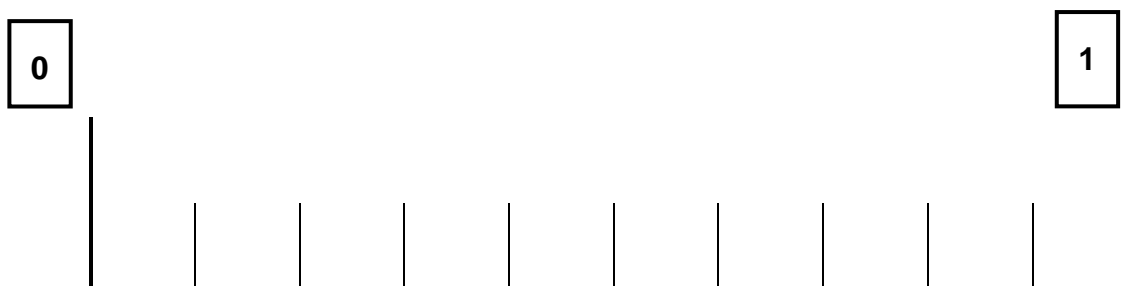
**Examples**

- 1 There are 20 sweets in a bowl.

One sweet is chosen at random.

The probability that a lemon sweet is chosen is  $\frac{6}{20}$

Mark this probability on the probability scale:



- 2 Jamie is planning a trip to a theme park.

Jamie wants to go on the day with the least chance of rain.

- the probability that it will rain on Monday is  $\frac{3}{8}$
- the probability that it will rain on Tuesday is  $\frac{4}{10}$

On which day should Jamie go to the theme park?

**Show how you decide.**

- 3 Kai is playing a fairground game.

- the probability that Kai wins a teddy bear is  $\frac{2}{5}$
- the probability that Kai wins a T-shirt is  $\frac{3}{8}$

Is Kai more likely to win a teddy bear or a T-shirt?

**Show how you decide.**

- 4 A fair coin is tossed.

What is the probability of getting a head?

Mark your answer on this probability scale:



**HID31****Use equally likely outcomes to find the probabilities of simple events and express them as fractions****Teaching Guidance**

Learners should be able to:

- work out a simple probability given equally likely outcomes
- give simple probabilities as a fraction
- know that if the probability of an event happening is  $P$ , the probability of the event not happening is  $1 - P$

**Examples**

- 1 There are 20 sweets in a bowl.

There are:

- 12 lemon sweets
- 8 chocolate sweets.

One sweet is chosen at random.

What is the probability that a chocolate sweet is chosen?

Give your answer as a fraction.

# Get help and support

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