GCSE Maths

Study Pack 2

Money and Number

HCUC

A merger between Uxbridge College and Harrow College

Harrow COLLEGE

UXBRIDGE COLLEGE

HCUC offer courses in mathematics at Entry level, Level 1, GCSE and A level. The following resource give you a taste of some of the topics covered in Functional Skills and GCSE maths lessons. It includes some important facts along with worked examples and exam style questions. The solutions are included for your reference.

The purpose of this resource is to give an initial insight into an example lesson. Actual lessons may consists of more activities/use of technology and may be adapted to meet the needs of individual learners.

Please note that this GCSE resource is aimed at Grade 2/3 level learners.

In this pack there are 3 example lessons:

GCSE Maths

Money

Study Resources

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Document Index

Money in GCSE Maths

Money calculations appear a few times in the topics of 'Measure', and 'Number'.

At GCSE (Foundation Level), you are assessed on being able to use standard units of money, using decimal quantities where appropriate. You will also be assessed on calculating discounts of any percentage on amounts of money and with simple and compound interest.

Money skills

We all know how to spend money, but how are your Maths skills when it comes to money? This document will give you a chance to check and update your skills.

Key Words relating to Money

Convert	change from one thing to another
Round	To ‘round’ a number is to change the number to one that is less exact but easier to use for calculations
Currency	Another word for money
Profit	The money earned or made when something is sold and any other costs
Discount	To pay less for something; to get money off the price of an item
Exchange	To swap for something else. In terms of money, this usually means swap your British pounds for money from another country or the other way round.
Interest	Money paid regularly at a particular rate. This could be money which is in a bank account or money that has been borrowed, like a loan.

We all want save money!

This could be by putting money in a bank account and leaving it there to earn interest or by getting a discount when we are buying things. A discount could be getting money off an item or buying more than one item to pay less for both.

The main way interest or discounts are calculated is using percentages.

The word percentage means ‘out of 100’ – ‘*per*’ means ‘out of’ and ‘*cent*’ refers to the 100 part.

<u>For more information about how to ‘work out’ a percentage, check the Level 1 document.</u>

Simple and Compound interest

Interest is money that is paid regularly at a particular percentage, usually when money has been lent or borrowed. For example, a bank will give its customers interest to reward them for saving money with them, but it will also charge interest to anyone who has borrowed money from them.

Simple interest is a quick way of calculating interest. Simple interest is worked out by calculating the percentage amount and multiplying it by the number of periods that the money will be invested for.

Example: Let's imagine that I borrow £40 for 3 years at 5% simple interest.

- Simple interest means I calculate 5% of £40, which is £2. Over 3 years, the interest will be 3 x £2, which is £6 in total. I will pay back £46.

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Compound interest means that each time interest is paid onto an amount saved or owed, the added interest also receives interest from then on.

Put simply, compound interest changes the amount of money in the bank each time and a new calculation has to be worked out.

Example: Let's imagine that I borrow £40 for 3 years at 5% compound interest.

- Compound interest means that we calculate 5% of the amount each year
  - Year 1: £40 + 5% = £40 + £2 = £42
  - Year 2: £42 + 5% = £42 + £2.10 = £44.10
  - Year 3: £44.10 + 5% = £44.10 + £2.21 = £46.31

You could also us the following formula to calculate the answer:

$$A = P\left(1 + \frac{r}{100}\right)^{n}$$

A = Final amount which includes the gained interest

P = principal amount

r = compound rate of interest

n = number of years

(Information edited from BBC Bitesize,google images)
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Exchange Rates

If you want to convert money from one currency (type of money) to another then you will use an exchange rate.

- Exchange rates tell us either what £1 is equal to or what 1 unit of another currency is equal to.

If I wanted to convert £56 into dollars, I'd need the exchange rate.
If it was £1 = $1.22, that means that for every £1 I have, I can get $1.22.

To exchange £56, I'd simply <u>multiply 56 by 1.22 = $68.22</u>

⇨ **56 * 1.22 = $68.22**

If I had $56 rather than £56, there would be an extra step.
If £1 = $1.22, divide both sides by 1.22,

⇨ $$\frac{\pounds 1}{1.22} = \frac{\$1.22}{1.22}$$

which would give us £0.82 = $1.
So, 82p for every dollar.
We would then <u>multiply 56 by 0.82 = £45.92</u>.

⇨ **56 * 0.82 = 345.92**

Have a go at the questions on the next page.

Question 1

Add up the costs listed below

Could you buy each list with a £5 note or would you need a £10 note?

A) Coffee (£2), cake (£1), large cola (£1)
B) Burger (£3), chips (£1.50), water (£1)
C) Pasta (75p), Beans (50p), milk (£1.10), sugar (£0.80)
D) 2 x sausage roll (1 is 90p), 3 x vegetable pasty (1 is £1.10), 2 x tomato soup (1 is 85p)

Extension task: How much change would you get from a £5 or £10 note?

Question 2

Which is better value, 15% discount on £140 or 10% discount on £215?

Question 3

A) James wants to buy a hat. It costs £12 but has 25% off. How much will James have to pay for the hat?

B) Ahmed puts £120 into a high interest account the bank. He earns simple interest of 5%.
   I. How much interest did he earn in 1 year?
   II. How much money will he have after 4 years?

C) Sheila also puts £120 into a high interest account. She earns compound interest at a rate of 4%.
   I. How much interest did she earn in 1 year?
   II. How much money will she have after 4 years?

Question 4

If £1 = €1.2, how much is £30 worth in Euros?

How much is €56 worth in British pounds?

Answers to Tasks

Question 1

A) £2 + £1 + £1 = £4 → Yes, you could use a £5 note
B) £3 + £1.50 + £1 = £5.50 → No, you could not use a £5 note, you need a £10 note
C) 75p + 50p + £1.10 + £0.80 = £3.15 → yes, you could use a £5 note
D) (2 x 90p) + (3 x £1.10) + (2 x 85p) = 180p + £2.20 + 170p = £1.80 + £2.20 + £1.70
= £5.70 → No, you could not use a £5 note, you need a £10 note.

Question 1 Extension

A) £5 – £4 = £1 change **B)** £10 - £5.50 = £4.50 **C)** £5 - £3.15 = £1.85 **D)** £10 - £5.70 = £4.30

Question

Question 3

A)

i) 5% of £120 → either 120 ÷ 100 x 5 = **£6** OR 10% = £12, 5% = **£6**
The answer is £6.

ii) If he earned £6 each year for 4 years, he earned £24 in total. Add that to £120 which will give you £144.
He will withdraw £144.

Question 4

15% of £140 → either 140 ÷ 100 x 15 = **£21** OR 10% = 14, 5% = 7, 15% = 14 + 7 = **£21**

10% of £215 → either 215 ÷ 100 x 10 = £21.50 OR 10% = £21.50

The second option is a better discount, by 50p / £0.50.

Links to websites

Below are a few websites which you might find useful. We suggest you go to them by clicking on the links below, rather than try and type them in!

Link	Information
https://youtu.be/LVGZPT2Ilsc	Rounding pounds and pence
https://youtu.be/oi-J_8TAEuI	Adding pounds and pence
https://youtu.be/_n7IWGMREqo https://youtu.be/arw4XshpwpQ	Solving Money problems
https://youtu.be/1QK81UdpMkg https://youtu.be/TefuinvnXUQ	Short videos about calculating and using discounts. (Less than 2 mins) (The amounts are in US dollars but the maths is the same!)
https://youtu.be/1pdnLsx6tkQ	A longer (7 minutes) but very good video about calculating discounts

Topic Quiz

Test your skill with this online quiz:

https://forms.gle/nxBaheDNQWRPuWGP7

It will mark it for you and give you feedback if you got a question wrong. Good luck!

Exam-Style Questions

Here are some typical exam questions at this level:

Summer 2018, paper 2

Neil buys 30 pens, 30 pencils, 30 rulers and 30 pencil cases.

Price list	
pens	6 for 82p
pencils	15 for 45p
rulers	10 for £1.25
pencil cases	37p each

What is the total amount of money Neil spends?

November 2018, Paper 2

Northern Bank has two types of account.
Both accounts pay compound interest.

Cash savings account	**Shares account**
Interest	Interest
2.5% per annum	3.5% per annum

Ali invests £2000 in the cash savings account.
Ben invests £1600 in the shares account.

(a) Work out who will get the most interest by the end of 3 years.
You must show all your working.

June 2019, paper 3

Liz goes on holiday to South Africa.

Liz wants to change £850 into South African rand.
She wants to get as many 200 rand notes as possible.

The exchange rate is £1 = 18.53 rand.

Work out the greatest number of 200 rand notes that Liz can get for £850

Exam-Style Questions – Worked solutions

Pens: 30 ÷ 6 = 5 sets → 82 x 5 = 410p = £4.10

Pencils: 30 ÷ 15 = 2 sets → 45 x 2 = 90p = £0.90

Rulers: 30 ÷10 = 3 sets → 1.25 x 3 = £3.75

Pencil cases: 30 x 37 = 1110p = £11.10

Total = 4.10 + 0.90 + 3.75 + 11.10 = **£19.85**

Ali - Cash saving account:

For 1 year = 2000 x 2.5% = 50

For 3 years = 50 x 3 = 150

Ben – Shares account- 3.5% = M= 103.5%= 1.035

1600 x 1.035^3 = 1773.95

£1 = 18.53 rand

£850= 850 x 18.53 = 15750.50 rand

200 notes = 15750.50 ÷ 200 =78.75

so she will get max 78 notes .

GCSE Maths

Decimals and Rounding

Study Resource

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The purpose of this resource is to give an initial insight into an example lesson. Actual lessons may consist of more activities/use of technology and may be adapted to meet the needs of individual learners.

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Content List

Numbers, Decimal and Rounding in Foundation Level GCSE Maths

At GCSE, you are assessed on being able to Count, read, write and understand positive whole numbers of any size. This document helps you with updating your skills on the above skills.

Reading and writing numbers:

The first step in working on maths and dealing with problem solving questions is to know how to read and write numbers. In your daily life, you may plan to buy a car/house and need to read the advertisements with prices, for instance.

Aiming this, you will need to now the place names in numbers.

Look at the first example on the next page.

Example 1:

millions	hundred thousands	ten thousands	thousands	hundreds	tens	units
5	**3**	**0**	**4**	**8**	**9**	**1**

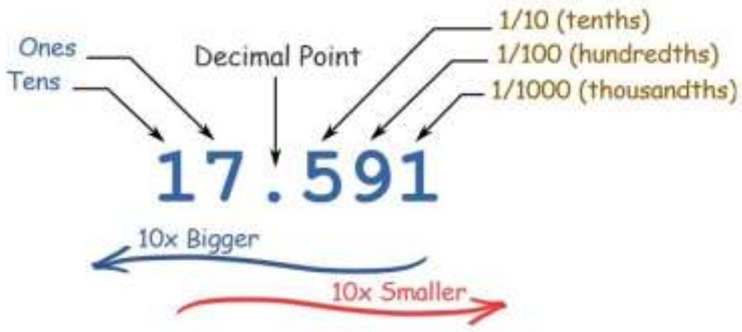
We read the above number as: *five million, three hundred and four thousand, eight hundred and ninety one.*

This is how we write this number: ***5,304,891*** (use the comma to make it easier when reading, however, it is optional).

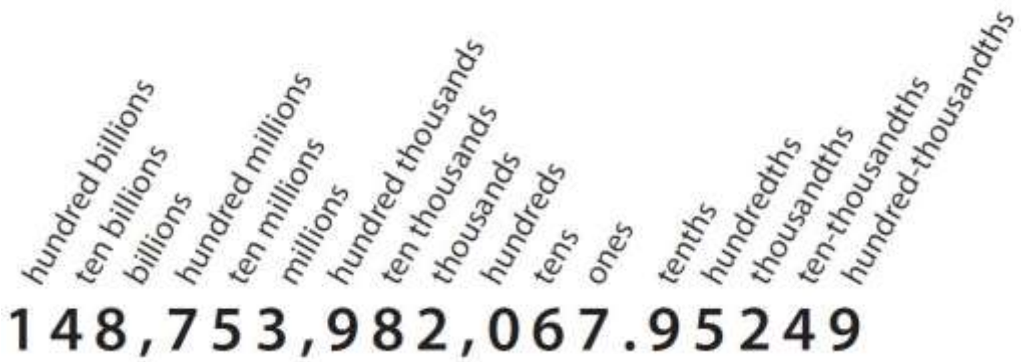
A point (small dot) is used to separate the whole number from the fractional part of a number.

Example 2: In the number 21.9 the point separates the 21 (the whole number part) from the 9 (the fractional part, which means 9 tenths). So 21.9 is 21 and nine tenths.

Example 3: below is how we show and express decimal places up to 3.



Also, look at the number written below, and the place value of each of the digits:



Rounding numbers:

Numbers can be rounded to 1, 2, 3 or more decimal places and by rounding the numbers, you will be able to approximate numbers to a given number of decimal places. Additionally, whole numbers can be rounded to the nearest 10, 100, 1000, etc.

The general rule:

We identify the place value we are rounding to (nearest 10 and 100 or 1 decimal place, 2 decimal places, etc.). Then look at the digit to its right. If the digit is **1,2,3,4** we 'round down' and the other digit we are rounding to does not change. All the other digits after it turn into zero.

If the digit is **5, 6, 7, 8 or 9** we 'round up' and the other digit we are rounding to increases by 1. All the other digits after it turn into zero.

Example 4: round 4.23 to 1d.p (one decimal place).

The first digit after decimal point is 2. We look to the digit on its right-hand side which is 3. Therefore, the answer would be 4.2

Example 5: round 10.346 to 2d.p.

The second decimal place is 4. We look to the digit on its right-hand side which is 6. Therefore, the answer is 10.35

Example 6: round the number 6471 to the nearest 10 and 100.

Tens is 7 in this number. The right-hand side digit is 1 and hence, this number to the nearest 10 would be rounded as 6470

Hundreds is 4 and the right-hand side digit is 7. Therefore, this number to the nearest 100 would be rounded as 6500

Significant figures:

Significant figures (s.f.) are the number of **digits** in the given number, often a measurement, that contribute to the degree of accuracy of the value. We start counting **significant figures** at the first non-zero digit.

In simple words significant figure is/are the digits which most significantly needed to give the accurate vale of the given number.

For example:

Tom has £4263

4 is the first s.f

6 is the 2nd s.f

2 is the 3rd s.f

At GCSE level, you need to know how to round numbers to certain significant figures too. Numbers can be rounded to 1,2, 3 or more significant figures. We count the number of figures from the first non-zero digit (i.e. from left-hand side). Note that when we approximate whole numbers, we may need to insert zeros as required in order to maintain the size of the number.

	1 s.f	**2 s.f**	**3 s.f**
4263	4000	4300	4360

We have to add zeros so that value of the given number does not change

Example 7: round 34621 to 1 and 2 significant figure.

1 s.f: you look at the first digit from left which is 3. Considering the next digit is 4, the answer is 30000 (the same amount of digit as 34621)

2 s.f: look at the first two digit from left which is 34. Considering the next digit is 6, the answer is 35000.

Example 8: round 2.710569 to 1 and 2 significant figure.

1 s.f: you look at the first digit from left which is 2. Considering the next digit is 7, the answer is 3.000000 or simply: 3

2 s.f.: look at the first two digit from left which is 2.7 . Considering the next digit is 1, the answer is 2.700000 or simply: 2.7

Ordering decimal numbers:

When you are given a set of decimal numbers to be written in order, for instance, starting with the biggest number, take the following steps:

1. Put the numbers in a place-value table with decimal points lined up.
2. Converts the numbers to the same number of digits by filling the gaps with zero.
3. Compare the numbers starting from the whole numbers, then the tenth, hundredth and so on.

Example 9: Put these numbers in order of size, starting with the largest: 2.7, 2.57, 3.7 and 2.75

First step, put them in place-value table and then as the second step, fill the gap with zero:

unit	*point*	*Tenth*	*Hundredth*
2	.	7	0
2	.	5	7
3	.	7	0
2	.	7	5

By comparing the whole number parts first, 3 is bigger than 2, so 3.7 is the largest. Next compare tenth: 7 is bigger than 5, so the next largest number is either 2.7 or 2.75

Next compare hundredth: 2.7 means 2.70

On the other hand, 0.5 is bigger than 0 so 2.75 is bigger than 2.7. Therefore, the answer in descending order is: **3.7, 2.75, 2.7, 2.57**

Link to website(s)

Below are a few websites which you might find useful. We suggest you link to these on your device, rather than try and type them in!

Place Value/ Value of a digit in a number https://www.mathsgenie.co.uk/place-value.html https://corbettmaths.com/wp-content/uploads/2013/02/place-value-pdf.pdf https://corbettmaths.com/wp-content/uploads/2015/03/place-value.pdf https://www.youtube.com/watch?v=xRjqQirJeGQ	**Ordering decimals** https://www.mathsisfun.com/ordering_decimals.html https://corbettmaths.com/2012/08/10/ordering-decimals-video/ https://www.youtube.com/watch?v=oYomNM91cms
Writing number words in figures or figures in number words https://www.youtube.com/watch?v=0Jga9XVa8Uo https://www.youtube.com/watch?v=f7nzbrc4gN8&t=5s https://corbettmaths.com/2013/12/07/figures-to-words/	**Rounding/estimating to nearest decimal place/significant figure** https://www.youtube.com/watch?v=q3X3pWCMIHM https://www.mathsgenie.co.uk/rounding.html https://corbettmaths.com/wp-content/uploads/2013/02/rounding-pdf.pdf https://corbettmaths.com/wp-content/uploads/2015/03/rounding.pdf
Rounding to nearest 10/100/1000 or whole number https://www.youtube.com/watch?v=HSFkEiEs9XE https://www.mathsgenie.co.uk/rounding.html	**Prime numbers, square & cube numbers** https://www.youtube.com/watch?v=CBpFpzEPayw https://www.youtube.com/watch?v=GsNHXHbdoWM https://corbettmaths.com/2013/03/24/prime-numbers/

Topic Quiz

Test your skill with this online quiz / these online quizzes:

https://forms.gle/G2MswowebD6U9jmD9

Exam-Style Questions

Here is an example of some typical exam questions at this level:

Q1. 54 327 people watched a concert.

(a) Write 54 327 to the nearest thousand. (1)

(b) Write down the value of the 5 in the number 54 327. (1)

(Total 2 marks)

Q2. (a) Write the number **seventeen thousand, two hundred and fifty-two** in figures.

(1)

(b) Write the number 5367 correct to the nearest hundred. (1)

(c) Write down the value of the 4 in the number 274 863 (1)

(Total 3 marks)

Q3. (a) Write the number 56 392 correct to one significant figure. (1)

(b) Write the number 0.0436 correct to one significant figure. (1)

(Total 2 marks)

Answers for GCSE Exam Style Questions

Q1 (a) 54 000

The digit to the right of the thousand column will decide the rounding.3 is less than 5. Therefore, 54372 to the nearest thousand is 54000.

(b) 50 000

The digit 5 appears in the ten thousand column, its value is 50000.

Q2 (a) 17252

(b) 5400

The digit to the right of the hundred column will decide the rounding.6 is greater than 5. Therefore, 5367 to the nearest hundred is 5400.

(c) 4000

The digit 4 appears in the thousand column, its value is 4000

Q3 (a) 60 000

The first digit is a non-zero digit. The digit to its right decides the rounding. 6 is bigger than 5. Therefore, 56392 would be rounded up to 60000(1sf).

(b) 0.04

The first non-zero digit is 4. The digit to its right decides the rounding. 3 is less than 5. Therefore, 0.0436 would be rounded down to 0.04(1sf).

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GCSE Maths

Number

Fractions, Decimals, and Percentages

Study Resource

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Fractions, Decimals, and Percentages

Introduction

Fractions, Decimals and Percentages are used throughout modern day life, whether it is in the workplace, calculating if you have been charged income tax correctly, or in a shop whether you have been charged VAT correctly or even at the gym seeing whether your gym membership has been charged at the special offer discounted price! A person who chooses to ignore the skill of calculating these equivalences is clearly going to be disadvantaged!

At GCSE level, you will be assessed on the following topics in particular:

- Work with terminating decimals and their corresponding fractions such as 3.5 and 7/2 or 0.375 or 3/8
- Identify and work with fractions in ratio problems
- Interpret fractions and percentages as operators

For an introduction to decimals and fractions, please see the Functional Skills Entry 3 and Level 1 booklets.

INFOMRATION AND EXAMPLES

Operations with Fractions

When doing any fraction calculation always begin by changing any mixed numbers into improper fractions. If the calculation is very simple then the integers can be added together first, followed by the fractions.

Addition and subtraction of fractions

Step 1 If the denominators are different, change the fractions to equivalent fractions with the same denominator.

Step 2 Add or subtract the top lines only - never add or subtract the bottom lines!

Step 3 Simplify where possible.

Examples	**Answers**
Calculate:	
$\frac{3}{5}+\frac{4}{5}$	$\frac{3}{5}+\frac{4}{5}=\frac{7}{5}=1\frac{2}{5}$
$\frac{8}{9}-\frac{5}{6}$	$\frac{8}{9}-\frac{5}{6}=\frac{16}{18}-\frac{15}{18}=\frac{1}{18}$
$\frac{13}{4}+\frac{22}{5}$	$\frac{13}{4}+\frac{22}{5}=\frac{65}{20}+\frac{88}{20}=\frac{153}{20}=7\frac{13}{20}$

Multiplication of fractions

Step 1: Simplify by cancelling common factors between top and bottom lines.

Step 2: Multiply the numerators together and then multiply the denominators together.

Examples	**Answers**
Calculate:	(by cancelling)
$\frac{4}{9}\times\frac{3}{8}$	$\frac{4}{9}\times\frac{3}{8}=\frac{1}{3}\times\frac{1}{2}=\frac{1}{6}$
$3\frac{1}{2}\times1\frac{3}{7}$	$3\frac{1}{2}\times1\frac{3}{7}=\frac{7}{2}\times\frac{10}{7}=\frac{1}{1}\times\frac{5}{1}=5$

Division of fractions

Step 1 Turn the second fraction upside down (to make it into the reciprocal)
Step 2 Change the operation sign to multiply,

Examples	**Answers**
Calculate:	
$\frac{5}{6}\div\frac{5}{12}$	$\frac{5}{6}\div\frac{5}{12}=\frac{5}{6}\times\frac{12}{5}=\frac{1}{1}\times\frac{2}{1}=2$
$5\frac{1}{4}\div1\frac{3}{5}$	$5\frac{1}{4}\div1\frac{3}{5}=\frac{21}{4}\times\frac{5}{8}=\frac{105}{32}=3\frac{9}{32}$

Fractions, Decimals, and Percentages

At Maths GCSE level you are expected to know and have memorised the common equivalences between Fractions, Decimals and Percentages like below:

FRACTION	DECIMAL	PERCENTAGE
1/100	0.01	1%
5/100	0.05	5%
1/10	0.1	10%
1/5	0.2	20%
1/4	0.25	25%
3/10	0.3	30%
1/3	0.3333333333 recurring	$33\frac{1}{3}$ %
2/5	0.4	40%
1/2	0.5	50%
3/5	0.6	60%
2/3	0.6666666666 recurring	$66\frac{2}{3}$ %
3/4	0.75	75%
4/5	0.8	80%
9/10	0.9	90%
1	1.0	100%
$2\frac{1}{2}$	2.5	250%

You are expected to be able to change from one equivalence to another for example how much is 3/4 as a percentage? *e.g. 3/4 x 100 = 300 / 4 = 75% answer*

Link to website(s)

Below are a few websites which you might find useful. We suggest you link to these on your device, rather than try and type them in!

Link	Explanation
Equivalent Fractions – Video & Worksheet	Comparing Fractions – Video & Worksheet
https://youtu.be/2Gbe6J0JzHE https://corbettmaths.com/wp-content/uploads/2019/03/Equivalent-Fractions-pdf.pdf	https://youtu.be/qPDOmGq81MA https://corbettmaths.com/wp-content/uploads/2018/12/Ordering-Fractions-pdf.pdf
FDP Fractions Mixture – Video & Worksheet	Decimals to Fractions – Video & Worksheet
https://youtu.be/gOmj58JdxL8 https://corbettmaths.com/wp-content/uploads/2018/11/FDP-Mixture-pdf.pdf	https://youtu.be/hO_ITi01VIk https://corbettmaths.com/wp-content/uploads/2018/12/Decimals-to-Fractions-pdf.pdf
Equivalent FDP – Video & Worksheet	Intro to % - Video & Worksheet
https://youtu.be/7VAFBHatBJY https://corbettmaths.com/wp-content/uploads/2019/01/FDP-Key-Equivalents-pdf.pdf	https://www.youtube.com/watch?v=ko3j5VFQOsI&list=PLUHcYgR3f2x0lCymOzc-J2jQtYmpKOAJo&index=46 https://www.mathsgenie.co.uk/resources/3-percentages.pdf
VAT Calculations – Video & Worksheet	
https://www.youtube.com/watch?v=8xs52lLvYb8 https://www.mathsgenie.co.uk/resources/51_percentages.pdf	

Topic Quiz

Test your skill with this online quiz / these online quizzes:

https://forms.gle/sfsGrn5uedKWL2FS9

Exam Questions

All questions are worth 4 marks.

Q1

(a) Work out $\frac{1}{5}+\frac{3}{4}$ **(2)**

(b) Work out $1\frac{3}{4}\times 1\frac{1}{2}$

Give your answer as a mixed number in its simplest form. **(2)**

Q2.

The normal price of a denim shirt at a shop is £9.60

On Special Offer Day, there is $\frac{1}{3}$ off the normal price.

Billy has £13.

Has he enough money to buy two denim shirts on Special Offer Day?

You must show all your working.

Q3

Renee buys 5 kg of sweets to sell. She pays £10 for the sweets.

Renee puts all the sweets into bags. She puts 250 g of sweets into each bag.

She sells each bag of sweets for 65p.

Renee sells all the bags of sweets.

Work out her percentage profit.

Answers

Q1

Work out $\frac{1}{5} + \frac{3}{4}$

$$\frac{4\times 1}{4\times 5} + \frac{3\times 5}{4\times 5}$$

$$\frac{4}{20} + \frac{15}{20}$$

$\frac{19}{20}$ ....
(2)

(b) Work out $1\frac{3}{4} \times 1\frac{1}{2}$

Give your answer as a mixed number in its simplest form.

$$\frac{7}{4} \times \frac{3}{2} = \frac{21}{8} = 2\frac{5}{8}$$

$2\frac{5}{8}$ ....
(2)

Q2

PAPER: 5MB2F_01					
Question		Working	Answer	Mark	Notes
*			Yes with working	4	M1 $9.60 \div 3$ (=3.20) or 9.60×2 (= 19.20) or $9.60 \times \frac{2}{3}$ (=6.40) M1 for a fully correct method to find the cost of the two shirts A1 12.8(0) C1 (dep on M2) ft statement supported by working OR M1 $9.60 \div 3$ (=3.20) or $9.60 \times \frac{2}{3}$ (=6.40) M1 $13 \div 2$ A1 for 6.4(0) and 6.5(0) C1 (dep on M2) ft statement supported by working

Q3

Question	Answer	Mark	Mark scheme	Additional guidance
	30	P1	for full process to find the number of bags sold eg $5 \times 1000 \div 250$ (= 20) **OR** for process to find selling price of 1 kg of sweets eg 0.65×4 (= 2.60)	This could be by repeated addition Calculations can be in £ or pence
		P1	for [number of bags] $\times$ 0.65 **or** "20" $\times$ 0.65 (= 13) **or** "2.60" $\times$ 5 (= 13) **OR** for $10 \div$ "20" oe (= 0.50) **OR** for 0.65×4 (= 2.60) **and** $10 \div 5$ (= 2)	[number of bags] can only come from $5 \times 10 \div 250$ (= 0.2) or $5 \times 100 \div 250$ (= 2) or $5 \div 250$ (= 0.02)
		P1	(dep on previous P1) for a process to find the percentage profit eg ("13" – 10) $\div$ 10 $\times$ 100 **or** (0.65 – "0.50") $\div$ "0.50" $\times$ 100 **or** ("2.60" – "2") $\div$ "2" $\times$ 100 **OR** "13" $\div$ 10 $\times$100 (= 130) oe	3/10 or 0.3 is not enough but should be awarded 2 marks Award P3 for 130(%)
		A1	cao	

Common Misconceptions – Do you make these mistakes?

- If fractions are part of a one whole, you can't get a fraction bigger than 1, moreover when you multiply two fractions the answer is always smaller
- If 5 is bigger than 4 then 1/5 is bigger than 1/4
- A pizza can be cut into 5 unequal sizes, each piece is still a fraction 1/5 one fifth
- If 2/9 + 3/9 = 5/9 then 1/6 + 1/9 = 2/15 of course

- Which is bigger 0.89 or 0.9? 0.89 of course eighty-nine sounds more than nine
- 3.25 hours represent 3 hours and twenty-five minutes
- If 0.1 represents 10% then 2.5 represents? Must be 25%!
- If rail fares are increased by 10%, then decreased by 10%, then rail fares must be back at the original price because +10% -10% , gets you back to where you started .

- Fractions, Decimals and Percentages, who needs these? I am never going to need these in my life? I mean everything is computerised for you? Right? You just google it and get the answer on your phone! It's a waste of time studying fractions, decimals and percentages.

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