

## Questions

**Q1.**

$p$  and  $q$  are two numbers such that  $p > q$

When you subtract 5 from  $p$  and subtract 5 from  $q$  the answers are in the ratio 5 : 1

When you add 20 to  $p$  and add 20 to  $q$  the answers are in the ratio 5 : 2

Find the ratio  $p : q$

Give your answer in its simplest form.

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.....  
**(Total for question = 5 marks)**

**(Q17 1MA1/2H, Nov 2018)**

**Q2.**

In a breakfast cereal, 40% of the weight is fruit.  
The rest of the cereal is oats.

(a) Write down the ratio of the weight of fruit to the weight of oats.  
Give your answer in the form  $1 : n$ .

.....  
(2)

A different breakfast cereal is made using only fruit and bran.  
The ratio of the weight of fruit to the weight of bran is  $1 : 3$

(b) What fraction of the weight of this cereal is bran?

.....  
(1)

**(Total for question is 3 marks)**

**(Q18 1MA1/3F/S1, Specimen papers )**

**Q3.**

Raya buys a van for £8500 plus VAT at 20%

Raya pays a deposit for the van.

She then pays the rest of the cost in 12 equal payments of £531.25 each month.

Find the ratio of the deposit Raya pays to the total of the 12 equal payments.

Give your answer in its simplest form.

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.....  
**(Total for question = 5 marks)**

**(Q04 1MA1/2H, June 2018)**

**Q4.**

Carlo puts tins into small boxes and into large boxes.

He puts 6 tins into each small box.

He puts 20 tins into each large box.

Carlo puts a total of 3000 tins into the boxes so that

number of tins in small boxes : number of tins in large boxes = 2 : 3

Carlo says that less than 30% of the boxes filled with tins are large boxes.

Is Carlo correct?

You must show all your working.

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**(Total for question = 5 marks)**

**(Q03 1MA1/2H, Nov 2020)**

**Q5.**

Scott wants to make orange juice.  
He is going to buy boxes of oranges.

There are 24 oranges in each box of oranges.
--

30 oranges make 2 litres of orange juice.
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Scott needs to buy enough oranges to make 8 litres of orange juice.

(a) Work out the number of boxes of oranges that Scott needs to buy.

You must show all your working.

.....  
(3)

Scott also buys

1260 apples

280 bananas

(b) Write down the ratio of the number of apples that Scott buys to the number of bananas that he buys.

Give your ratio in its simplest form.

.....  
(2)

**(Total for question = 5 marks)**

**Q6.**

There are 240 cans of drink on a shelf.  
Each can contains cola or lemonade or orange.

$$\frac{\text{the number of cans of cola}}{\text{the number of cans of lemonade}} : \frac{\text{the number of cans of lemonade}}{\text{the number of cans of orange}} = 5:3:2$$

$\frac{1}{2}$  of the cans of lemonade and  $\frac{1}{12}$  of the cans of orange are removed from the shelf.

Work out the number of cans of cola as a percentage of the total number of cans of drink remaining on the shelf.

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..... %

**(Total for question = 5 marks)**

**(Q18 1MA1/1F, Nov 2022)**

**Q7.**

Rizwan writes down three numbers  $a$ ,  $b$  and  $c$

$$a : b = 1 : 3$$
$$b : c = 6 : 5$$

(a) (i) Find  $a : b : c$

.....  
(2)

(ii) Express  $a$  as a fraction of the total of the three numbers  $a$ ,  $b$  and  $c$

.....  
(2)

Emma writes down three numbers  $m$ ,  $n$  and  $p$

$$n = 2m$$
$$p = 5n$$

(b) Find  $m : p$

.....  
(2)

**(Total for question = 6 marks)**

**(Q24 1MA1/1F, Nov 2022)**

**Q8.**

A shop sells packs of black pens, packs of red pens and packs of green pens.

There are

- 2 pens in each pack of black pens
- 5 pens in each pack of red pens
- 6 pens in each pack of green pens

On Monday,

$$\begin{array}{l} \text{number of packs} \\ \text{of black pens sold} \end{array} : \begin{array}{l} \text{number of packs} \\ \text{of red pens sold} \end{array} : \begin{array}{l} \text{number of packs} \\ \text{of green pens sold} \end{array} = 7:3:4$$

A total of 212 pens were sold.

Work out the number of green pens sold.

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**(Total for question = 4 marks)**

**(Q06 1MA1/1H, June 2019)**

**Q9.**

There are 60 people in a choir.  
Half of the people in the choir are women.

The number of women in the choir is 3 times the number of men in the choir.  
The rest of the people in the choir are children.

the number of children in the choir : the number of men in the choir =  $n$  : 1

Work out the value of  $n$ .  
You must show how you get your answer.

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$n = \dots\dots\dots$





**(Total for question = 4 marks)**

**(Q02 1MA1/1H, Nov 2019)**

**Q10.**

There are four types of cards in a game.

Each card has a black circle or a white circle or a black triangle or a white triangle.

			
number of cards with a black shape	:	number of cards with a white shape	= 3:5
number of cards with a circle	:	number of cards with a triangle	= 2:7

Express the total number of cards with a black shape as a fraction of the total number of cards with a triangle.

.....  
**(Total for question = 3 marks)**

**(Q23 1MA1/1H, Nov 2020)**

**Q11.**

There are two drama groups in a school.

In one group there are 36 boys and 48 girls.

In the other group,  $\frac{3}{7}$  of the students are boys and the rest of the students are girls.

Ann says,

"The ratio of the number of boys to the number of girls is the same for both groups."

Is Ann correct?

You must show how you get your answer.

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**(Total for question = 3 marks)**

**(Q12 1MA1/1F, Nov 2021)**

**Q12.**

Costcorp sells packets of mints to shop owners.

On Monday three shop owners buy mints from Costcorp.

Each shop owner buys small packets, medium packets and large packets of mints.

Alan buys 400 packets of mints.

32 % are small packets.

40 % are large packets.

Beryl buys 500 packets of mints.

$\frac{3}{10}$  are small packets.

$\frac{1}{10}$  are large packets.

Charlie buys 150 small packets of mints so that

number of small packets : number of medium packets = 3 : 4

Work out the total number of medium packets of mints these shop owners buy.

You must show all your working.

.....  
**(Total for question = 5 marks)**

**(Q23 1MA1/3F, June 2019)**

**Q13.**

A delivery company has a total of 160 cars and vans.

the number of cars : the number of vans = 3 : 7

Each car and each van uses electricity or diesel or petrol.

$\frac{1}{8}$  of the cars use electricity.

25% of the cars use diesel.

The rest of the cars use petrol.

Work out the number of cars that use petrol.

You must show all your working.

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.....  
**(Total for question = 5 marks)**

**(Q03 1MA1/1H, June 2022)**

**Q14.**

Andy, Luke and Tina share some sweets in the ratio 1 : 6 : 14

Tina gives  $\frac{3}{7}$  of her sweets to Andy.

Tina then gives  $12\frac{1}{2}\%$  of the rest of her sweets to Luke.

Tina says,

"Now all three of us have the same number of sweets."

Is Tina correct?

You must show how you get your answer.

**(Total for question = 4 marks)**

**(Q06 1MA1/2H, June 2024)**

**Q15.**

Kasim has some small jars, some medium jars and some large jars.

He has a total of 400 jars.

$\frac{3}{8}$  of the 400 jars are empty.

For the empty jars,

number of small jars : number of medium jars = 3 : 4

number of medium jars : number of large jars = 1 : 2

Work out the percentage of Kasim's jars that are empty small jars.

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..... %

**(Total for question = 5 marks)**

**(Q26 1MA1/1F, June 2024)**

**Q16.**

Given that  $\frac{a}{b} = \frac{2}{5}$  and  $\frac{b}{c} = \frac{3}{4}$

find  $a : b : c$

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.....  
**(Total for question = 3 marks)**

**(Q10 1MA1/1H, Nov 2020)**

**Q17.**

The table shows a cricket club's income in 2016 from a fete, a quiz and membership fees.

	<b>Income</b>	
<b>Fete</b>		£250
<b>Quiz</b>	Entry fees	13 at £5 each
	Refreshments	£35
<b>Membership fees</b>		25 at £20 each

Express as a ratio

the income from the fete to the income from the quiz to the income from membership fees.

Give your ratio in its simplest form.

.....  
**(Total for question = 3 marks)**

**(Q11 1MA1/2F, Nov 2017)**

**Q18.**

Here are the first five terms of a sequence.

3   8   13   18   23

(a) Write down the next term of this sequence.

.....  
(1)

(b) Write down the ratio of the second term to the fourth term.  
Give your ratio in its simplest form.

.....  
(2)

**(Total for question = 3 marks)**

**(Q09 1MA1/2F, June 2023)**

**Q19.**

Robert makes 50 litres of green paint by mixing litres of yellow paint and litres of blue paint in the ratio 2 : 3

Yellow paint is sold in 5 litre tins.  
Each tin of yellow paint costs £26

Blue paint is sold in 10 litre tins.  
Each tin of blue paint costs £48

Robert sells all the green paint he makes in 10 litre tins.  
He sells each tin of green paint for £66.96

Work out Robert's percentage profit on each tin of green paint he sells.

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..... %

**(Total for question = 5 marks)**

**(Q10 1MA1/2H, Nov 2018)**

**Q20.**

Pens and pencils are sold in a shop.

12 pencils cost £1.80

The ratio of the cost of a pen to the cost of a pencil is 7 : 3

Work out the cost of 5 pens.

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£ .....

**(Total for question = 4 marks)**

**(Q20 1MA1/2F, Nov 2020)**

**Q21.**

(a) Write £4.20 : £1.40 : £7 in its simplest form.

.....

(2)

(b) Write a number on the dotted line to complete the statement  $6 : 4 = \text{.....} : 1$

(1)

**(Total for question = 3 marks)**

**(Q14 1MA1/2F/M3, Specimen papers )**

**Q22.**

Anna and Bill share some money in the ratio 2 : 5

Anna gets £ $A$

Bill gets £ $B$

Carl and Donna share twice as much money as Anna and Bill share.

They share the money in the ratio 3 : 1

Carl gets £ $C$

Donna gets £ $D$

Find  $A : B : C : D$

Give your answer in its simplest form.

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.....

**(Total for question = 3 marks)**

**(Q11 1MA1/2H/M3, Specimen papers )**

**Q23.**

The ratio of Marta's hourly pay to Khalid's hourly pay is 6 : 5

Both Marta and Khalid get an increase of £1.50 in their hourly pay.

The ratio of Marta's hourly pay to Khalid's hourly pay after this increase is 13 : 11

Work out the hourly pay before the increase for Marta and for Khalid.

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Marta £ .....

Khalid £ .....

**(Total for question = 4 marks)**

**(Q15 1MA1/2H, June 2022)**

**Q24.**

Chris, Debbie and Errol share some money in the ratio 3 : 4 : 2  
Debbie gets £120

Chris then gives some of his share to Debbie and some of his share to Errol.  
The money that Chris, Debbie and Errol each have is now in the ratio 2 : 5 : 3

How much money did Chris give to Errol?

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£ .....

**(Total for question = 4 marks)**

**(Q26 1MA1/2F, Nov 2023)**

**Q25.**

Gavin, Harry and Isabel each earn the same monthly salary.

Each month,

Gavin saves 28% of his salary and spends the rest of his salary

Harry spends  $\frac{3}{4}$  of his salary and saves the rest of his salary  
the amount of salary Isabel saves : the amount of salary she spends = 3:7

Work out who saves the most of their salary each month.

You must show how you get your answer.

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**(Total for question = 4 marks)**

**(Q14 1MA1/1F, June 2018)**

**Q26.**

There are four boxes on a shelf, **A**, **B**, **C** and **D**.

The total weight of **A** and **B** is 3 times the total weight of **C** and **D**.

The weight of **A** is  $\frac{2}{3}$  of the weight of **B**.

The weight of **C** is 75% of the weight of **D**.

Find the ratio

weight of **A** : weight of **B** : weight of **C** : weight of **D**

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.....  
**(Total for question = 4 marks)**

**(Q17 1MA1/3H, Nov 2022)**

**Q27.**

Last week, 73% of the tickets sold at a cinema were adult tickets.

(a) What percentage of the tickets sold were **not** adult tickets?

..... %  
(1)

Some people watched a film at the cinema.

number of adults : number of children = 2 : 5

(b) What fraction of these people were adults?

.....  
(1)

On Friday,

500 people watched a film at the cinema.

70% of these people were children.

On Saturday,

720 people watched the film at the cinema.

$\frac{5}{8}$  of these people were children.

Kasim thinks more children watched the film on Friday than on Saturday.

(c) Is Kasim correct?

You must show how you get your answer.

(3)

**(Total for question = 5 marks)**

**(Q14 1MA1/1F, June 2023)**

**Q28.**

Last year a family recycled 800 kg of household waste.  
57% of this waste was paper and glass.

weight of paper recycled : weight of glass recycled = 12 : 7

Calculate the weight of glass the family recycled.

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..... kg

**(Total for question = 3 marks)**

**(Q25 1MA1/2F, June 2023)**

**Q29.**

There are some small cubes and some large cubes in a bag.  
The cubes are red or the cubes are yellow.

The ratio of the number of small cubes to the number of large cubes is 4 : 7

The ratio of the number of red cubes to the number of yellow cubes is 3 : 5

(a) Explain why the least possible number of cubes in the bag is 88

.....  
.....  
.....

(1)

All the small cubes are yellow.

(b) Work out the least possible number of large yellow cubes in the bag.

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.....  
(3)

**(Total for question = 4 marks)**

**(Q17 1MA1/2H, June 2019)**

**Q30.**

In a tin of baked beans,

weight of beans : weight of tomatoes : weight of other ingredients = 3 : 2 : 1

There are 150 g of tomatoes in the tin.

Work out the weight of the beans.

..... g

**(Total for question = 2 marks)**

**(Q16 1MA1/2F/M3, Specimen papers )**

**Q31.**

Azmol, Ryan and Kim each played a game.

Azmol's score was four times Ryan's score.

Kim's score was half of Azmol's score.

Write down the ratio of Azmol's score to Ryan's score to Kim's score.

.....

**(Total for question = 2 marks)**

**(Q13 1MA1/1F, Nov 2018)**

**Q32.**

Write down the ratio of 450 grams to 15 grams.  
Give your answer in its simplest form.

.....  
**(Total for question = 2 marks)**

**(Q16 1MA1/3F, Nov 2018)**

**Q33.**

Write the ratio 4.5 : 2.25 in the form  $n : 1$

.....  
**(Total for question = 1 mark)**

**(Q14 1MA1/2F, June 2019)**

**Q34.**

Ali, Ben and Cathy share an amount of money in the ratio 6 : 9 : 10

What fraction of the money does Ben get?

.....  
**(Total for question = 2 marks)**

**(Q12 1MA1/3F, June 2019)**

**Q35.**

Tom and Adam have a total of 240 stamps.

The ratio of the number of Tom's stamps to the number of Adam's stamps is 3 : 7

Tom buys some stamps from Adam.

The ratio of the number of Tom's stamps to the number of Adam's stamps is now 3 : 5

How many stamps does Tom buy from Adam?

You must show all your working.

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.....  
**(Total for question = 4 marks)**

**(Q03 1MA1/2H, Nov 2019)**

**Q36.**

A group of people went to a restaurant.  
Each person chose one starter and one main course.

starter	main course
soup	lasagne
prawns	curry

the number of people who chose soup : the number of people who chose prawns = 2 : 3

Of those who chose soup,  
the number of people who chose lasagne : the number of people who chose curry = 5 : 3

Of those who chose prawns,  
the number of people who chose lasagne : the number of people who chose curry = 1 : 5

What fraction of the people chose curry?  
You must show how you get your answer.

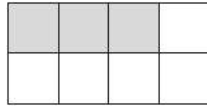
.....

**(Total for question = 4 marks)**

**(Q14 1MA1/3H, Nov 2019)**

**Q37.**

Here is a grid of squares.



Write down the ratio of the number of shaded squares to the number of unshaded squares.

.....

**(Total for question = 1 mark)**

**(Q06 1MA1/3F, Nov 2019)**

**Q38.**

(a) A bag contains red counters and blue counters only.

number of red counters : number of blue counters = 3 : 4

Write down the fraction of the counters that are red.

.....

(1)

(b) Write the ratio 12 : 30 in the form 1 :  $n$

.....

(2)

**(Total for question = 3 marks)**

**(Q09 1MA1/1F, Nov 2020)**

**Q39.**

Rosie, Matilda and Ibrahim collect stickers.

$$\begin{array}{l} \text{number of stickers} \\ \text{Rosie has} \end{array} : \begin{array}{l} \text{number of stickers} \\ \text{Matilda has} \end{array} : \begin{array}{l} \text{number of stickers} \\ \text{Ibrahim has} \end{array} = 4:7:15$$

Ibrahim has 24 more stickers than Matilda.

Ibrahim has more stickers than Rosie.  
How many more?

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.....  
**(Total for question = 3 marks)**

**(Q24 1MA1/1F, Nov 2021)**

**Q40.**

Natalie makes potato cakes in a restaurant.

She mixes potato, cheese and onion so that

weight of potato : weight of cheese : weight of onion = 9 : 2 : 1

Natalie needs to make 6000 g of potato cakes.

Cheese costs £2.25 for 175 g.

Work out the cost of the cheese needed to make 6000 g of potato cakes.

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£ .....

**(Total for question = 4 marks)**

**(Q22 1MA1/3F, Nov 2021)**

**Q41.**

Olivia and Jessica have in total half as many sweets as Fran and Gary have in total.

Fran and Gary share their sweets in the ratio 2 : 3

Olivia and Jessica share their sweets in the ratio 9 : 1

Fran got  $w$  sweets.

Gary got  $x$  sweets.

Olivia got  $y$  sweets.

Jessica got  $z$  sweets.

Find, in its simplest form,  $w : x : y : z$

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.....  
**(Total for question = 4 marks)**

**(Q14 1MA1/3H, Nov 2021)**

**Q42.**

Rick, Selma and Tony are playing a game with counters.

Rick has some counters.

Selma has twice as many counters as Rick.

Tony has 6 counters less than Selma.

In total they have 54 counters.

the number of counters Rick has : the number of counters Tony has =  $1 : p$

Work out the value of  $p$ .

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$p = \dots\dots\dots$

**(Total for question = 5 marks)**

**(Q24 1MA1/3F, June 2022)**

**Q43.**

Amol, Gemma and Harry each have a number of sweets.

The number of sweets that Gemma has is 6 times the number of sweets that Amol has.

The number of sweets that Harry has is half the number of sweets that Gemma has.

Write down the ratio

the number of sweets : the number of sweets : the number of sweets  
that Amol has : that Gemma has : that Harry has

.....  
**(Total for question = 2 marks)**

**(Q12 1MA1/3F, Nov 2022)**

**Q44.**

Rob has been asked to divide 120 in the ratio 3 : 5

Here is his working.

$$120 \div 3 = 40$$

$$120 \div 5 = 24$$

Rob's working is not correct.

Describe what Rob has done wrong.

.....  
.....  
.....

**(Total for question = 1 mark)**

**(Q22 1MA1/3F, Nov 2022)**

**Q45.**

7 kg of carrots and 5 kg of tomatoes cost a total of 480p

cost of 1 kg of carrots : cost of 1 kg of tomatoes = 5 : 9

Work out the cost of 1 kg of carrots and the cost of 1 kg of tomatoes.

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carrots ..... p

tomatoes ..... p

**(Total for question = 4 marks)**

**(Q18 1MA1/1H, June 2023)**

**Q46.**

There are only red beads and green beads in a bag.

$$\text{number of red beads} : \text{number of green beads} = 1 : 4$$

There are 35 red beads in the bag.

Work out the total number of beads in the bag.

.....  
**(Total for question = 2 marks)**

**(Q15 1MA1/3F, June 2023)**

**Q47.**

There are 48 counters in a bag.

There are only red counters and blue counters in the bag.

$$\text{number of red counters} : \text{number of blue counters} = 1 : 2$$

Helen has to work out how many red counters are in the bag.

She says,

"There are 24 red counters in the bag because 1 is half of 2 and 24 is half of 48"

Is Helen correct?

You must give a reason for your answer.

.....  
.....  
.....

**(Total for question = 1 mark)**

**(Q22 1MA1/2F, June 2023)**

**Q48.**

$$2a : 5c = 6 : 25$$

$$4b : 7c = 20 : 21$$

Show that  $a + b : b + c = 17 : 20$

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**(Total for question = 3 marks)**

**(Q18 1MA1/2H, June 2023)**

**Q49.**

Given that  $\frac{2x^2 + y^2}{4x^2 - y^2} = \frac{43}{11}$  where  $x > 0$  and  $y > 0$

find, in its simplest form, the ratio  $x : y$

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.....  
**(Total for question = 4 marks)**

**(Q23 1MA1/3H, Nov 2023)**

**Q50.**

There are 24 red counters and 40 blue counters in a bag.

Write down the ratio of the number of red counters to the number of blue counters in the bag.  
Give your ratio in its simplest form.

.....  
**(Total for question = 2 marks)**

**(Q10 1MA1/2F, Nov 2023)**

**Q51.**

There are 24 cows and 36 sheep on a farm.

Write as a ratio the number of cows to the number of sheep.

Give your ratio in its simplest form.

.....  
**(Total for question = 2 marks)**

**(Q10 1MA1/1F, June 2024)**

**Q52.**

Gita wants to make 24 litres of green paint.

She is going to mix blue paint, yellow paint and white paint in the ratio 4 : 3 : 1

She has

12 litres of blue paint

7 litres of yellow paint

5 litres of white paint.

Does Gita have enough blue paint, yellow paint and white paint to make 24 litres of green paint?

You must show how you get your answer.

**(Total for question = 3 marks)**

**(Q17 1MA1/1F, Nov 2024)**

**Q53.**

There are 90 red counters and 150 yellow counters in a bag.

Write down the ratio of the number of red counters to the number of yellow counters.

Give your ratio in its simplest form.

.....  
**(Total for question = 2 marks)**

**(Q09 1MA1/2F, Nov 2024)**

**Q54.**

Given that

$$x^2 : (3x + 5) = 1 : 2$$

find the possible values of  $x$ .

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.....  
**(Total for question = 4 marks)**

**(Q17 1MA1/1H, June 2019)**

**Q55.**

There are only red counters and yellow counters in bag **A**.

number of red counters : number of yellow counters = 3 : 5

There are only green counters and blue counters in bag **B**.

The number of counters in bag **B** is half the number of counters in bag **A**.

Given that there are  $x$  red counters in bag **A**,

use algebra to show that the total number of counters in bag **A** and bag **B** is  $4x$

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**(Total for question = 3 marks)**

**(Q10 1MA1/3H, June 2024)**

**Q56.**

$$5c + d = c + 4d$$

(a) Find the ratio  $c : d$

$$6x^2 = 7xy + 20y^2 \text{ where } x > 0 \text{ and } y > 0$$

(b) Find the ratio  $x : y$

.....  
(2)

.....  
(3)

**(Total for question = 5 marks)**

**(Q21 1MA1/3H, Nov 2020)**

**Q57.**

$$x^2 - 9y^2 = 0 \text{ where } x > 0 \text{ and } y > 0$$

(a) Work out the ratio  $x : y$

.....  
(3)

(b) Simplify fully  $\frac{3 - 4x - 4x^2}{2x^2 - 7x + 3}$

.....  
(3)

**(Total for question = 6 marks)**

**(Q17 1MA1/1H/M3, Specimen papers )**

**Q58.**

Cormac has some sweets in a bag.

The sweets are lime flavoured or strawberry flavoured or orange flavoured.

In the bag

$$\begin{array}{l} \text{number of lime} \\ \text{flavoured sweets} \end{array} : \begin{array}{l} \text{number of strawberry} \\ \text{flavoured sweets} \end{array} : \begin{array}{l} \text{number of orange} \\ \text{flavoured sweets} \end{array} = 9 : 4 : x$$

Cormac is going to take at random a sweet from the bag.

The probability that he takes a lime flavoured sweet is  $\frac{3}{7}$

Work out the value of  $x$ .

$x = \dots\dots\dots$

**(Total for question = 3 marks)**

**(Q11 1MA1/1H, June 2022)**

**Q59.**

Rizwan writes down three numbers  $a$ ,  $b$  and  $c$

$$a : b = 1 : 3$$

$$b : c = 6 : 5$$

(a) (i) Find  $a : b : c$

.....  
(2)

(ii) Express  $a$  as a fraction of the total of the three numbers  $a$ ,  $b$  and  $c$

.....  
(2)

Emma writes down three numbers  $m$ ,  $n$  and  $p$

$$n = 2m$$

$$p = 5n$$

(b) Find  $m : p$

.....  
(2)

**(Total for question = 6 marks)**

**(Q06 1MA1/1H, Nov 2022)**

**Q60.**

Annie and Lily share some money in the ratio 4 : 3

(a) What fraction of the money does Lily get?

.....  
(1)

Rosie and Dan share some sweets.

Dan gets  $\frac{1}{4}$  of the sweets.

(b) Write down the ratio of the number of sweets Rosie gets to the number of sweets Dan gets.

.....  
(1)

**(Total for question = 2 marks)**

**(Q06 1MA1/2F, Nov 2017)**

**Q61.**

Frank, Mary and Seth shared some sweets in the ratio 4 : 5 : 7  
Seth got 18 more sweets than Frank.

Work out the total number of sweets they shared.

.....

**(Total for question = 3 marks)**

**(Q23 1MA1/2F/N, Specimen papers )**

**Q62.**

On a farm

the number of cows and the number of sheep are in the ratio 6 : 5  
the number of sheep and the number of pigs are in the ratio 2 : 1

The total number of cows, sheep and pigs on the farm is 189

How many sheep are there on the farm?

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.....

**(Total for question = 3 marks)**

**(Q06 1MA1/2H/S2, Specimen papers )**

**Q63.**

Given that

$$2x - 1 : x - 4 = 16x + 1 : 2x - 1$$

find the possible values of  $x$ .

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.....

**(Total for question = 5 marks)**

**(Q21 1MA1/2H/S2, Specimen papers )**

**Q64.**

Daniel bakes 420 cakes.

He bakes only vanilla cakes, banana cakes, lemon cakes and chocolate cakes.

$\frac{2}{7}$  of the cakes are vanilla cakes.

35% of the cakes are banana cakes.

The ratio of the number of lemon cakes to the number of chocolate cakes is 4:5

Work out the number of lemon cakes Daniel bakes.

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.....  
**(Total for question = 5 marks)**

**(Q18 1MA1/3F, June 2017)**

**Q65.**

White shapes and black shapes are used in a game.  
Some of the shapes are circles.  
All the other shapes are squares.

The ratio of the number of white shapes to the number of black shapes is 3:7

The ratio of the number of white circles to the number of white squares is 4:5

The ratio of the number of black circles to the number of black squares is 2:5

Work out what fraction of all the shapes are circles.

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.....  
**(Total for question = 4 marks)**

**(Q14 1MA1/1H, June 2017)**

**Q66.**

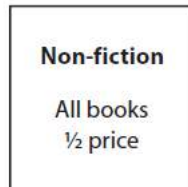
Helen has 80 books to sell.

Each book is Fiction or Non-fiction.

The ratio of the number of Fiction books to the number of Non-fiction books is 3:1

Each book has a normal price of £10

Helen reduces the price of all the Non-fiction books.



Helen sells all 80 books.

Work out the total amount of money Helen will receive.

£ .....

**(Total for question = 4 marks)**

**(Q12 1MA1/1F/S2, Specimen papers )**

**Q67.**

Harry, Regan and Kelan share £450 in the ratio 2 : 5 : 3

How much money does Kelan get?

£ .....

**(Total for question = 2 marks)**

**(Q18 1MA1/1F, Nov 2017)**

**Q68.**

In a box of pens, there are

three times as many red pens as green pens  
**and** two times as many green pens as blue pens.

For the pens in the box, write down  
the ratio of the number of red pens to the number of green pens to the number of blue pens.

.....

**(Total for question = 2 marks)**

**(Q08 1MA1/2H/N, Specimen papers )**

**Q69.**

There are 64 cards in a pack.

Each card is either red or black.

The ratio of the number of red cards to the number of black cards is 1 : 1

8 red cards are removed from the pack.

Find the ratio of the number of red cards now in the pack to the number of black cards now in the pack.

Give your answer in its simplest form.

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.....

**(Total for question = 3 marks)**

**(Q18 1MA1/2F/S2, Specimen papers )**

**Q70.**

The points  $A$ ,  $B$ ,  $C$  and  $D$  lie in order on a straight line.

$$AB : BD = 1:5$$
$$AC : CD = 7:11$$

Work out  $AB : BC : CD$

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..... : ..... : .....

**(Total for question = 3 marks)**

**(Q12 1MA1/3H, June 2017)**

**Q71.**

A cafe sells cakes and scones.

On Tuesday, the ratio of the number of cakes sold to the number of scones sold was 5 : 2

On Tuesday, the cafe sold 80 scones.

How many cakes were sold on Tuesday?

.....

**(Total for question = 2 marks)**

**(Q14 1MA1/1F/M1, Specimen papers )**

**Q72.**

Neal, Craig and Keith are cousins.

Their ages are in the ratio 17 : 14 : 9

Craig is 42 years old.

How old are Neal and Keith?

Neal ..... years

Keith ..... years

**(Total for question = 3 marks)**

**(Q19 1MA1/2F/M2, Specimen papers )**

**Q73.**

Given that

$$a : b = 8 : 5 \quad \text{and} \quad b : c = 3 : 4$$

find the ratio

$$a : b : c$$

Give your answer in its simplest form.

.....  
**(Total for question = 3 marks)**

**(Q08 1MA1/2H/M1, Specimen papers )**

**Q74.**

288 chocolates are put into three boxes.

The chocolates are put into a small box, a medium box and a large box in the ratio 1 : 3 : 8

Work out the number of chocolates in each box.

small box .....

medium box .....

large box .....

**(Total for question = 3 marks)**

**(Q09 1MA1/3F/M2, Specimen papers )**

**Q75.**

There are only blue pens, green pens and red pens in a box.

The ratio of the number of blue pens to the number of green pens is 2 : 5

The ratio of the number of green pens to the number of red pens is 4 : 1

There are less than 100 pens in the box.

What is the greatest possible number of red pens in the box?

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.....  
**(Total for question = 3 marks)**

**(Q04 1MA1/3H, Nov 2017)**

**Q76.**

Kiaria is 7 years older than Jay.  
Martha is twice as old as Kiaria.  
The sum of their three ages is 77

Find the ratio of Jay's age to Kiaria's age to Martha's age.

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.....  
**(Total for question = 4 marks)**

**(Q02 1MA1/1H, Nov 2017)**

**Q77.**

The ratio of the cost of one metre of cotton fabric to the cost of one metre of silk fabric is 2 : 5

Complete the table of costs.

	2 m	6 m	8 m	9 m
cotton fabric	£6			
silk fabric				

**(Total for question = 3 marks)**

**(Q15 1MA1/3F, Nov 2017)**

**Q78.**

1 litre of a liquid **P** has a mass of  $p$  grams.

1 litre of a liquid **Q** has a mass of  $q$  grams.

A liquid **R** is made by mixing a volume of liquid **P** with a volume of liquid **Q** in the ratio 3 : 7

Find an expression, in terms of  $p$  and  $q$ , for the mass of 50 litres of liquid **R**.

..... grams

**(Total for question = 3 marks)**

**(Q09 1MA1/1H/M2, Specimen papers )**

**Q79.**

The ratio  $(y + x) : (y - x)$  is equivalent to  $k : 1$

Show that  $y = \frac{x(k + 1)}{k - 1}$

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**(Total for question = 3 marks)**

**(Q14 1MA1/1H, Nov 2017)**

**Q80.**

A farmer has 20 boxes of eggs.  
There are 6 eggs in each box.

Write, as a ratio, the number of eggs in two boxes to the total number of eggs.  
Give your answer in its simplest form.

.....  
**(Total for question = 2 marks)**

**(Q10 1MA1/1F, June 2017)**

**Q81.**

There are some chocolates in a box.

$\frac{1}{4}$  of the chocolates contain nuts.

The rest of the chocolates do not contain nuts.

Write down the ratio of the number of chocolates that contain nuts to the number of chocolates that do not contain nuts.

Give your answer in the form  $1 : n$

.....  
**(Total for question = 2 marks)**

**(Q17 1MA1/1F, June 2018)**

**Q82.**

There are 28 red pens and 84 black pens in a bag.

Write down the ratio of the number of red pens to the number of black pens.  
Give your ratio in its simplest form.

.....

**(Total for question is 2 marks)**

**(Q12 1MA1/1F/S1, Specimen papers )**

**Q83.**

A path is made of white tiles and grey tiles.

$\frac{1}{4}$  of the tiles are white.

(a) Write down the ratio of white tiles to grey tiles.

.....

(1)

There is a total of 56 tiles.

(b) Work out the number of grey tiles.

.....

(2)

**(Total for question = 3 marks)**

**(Q05 1MA1/3F, June 2017)**

**Q84.**

There are 35 pens in a box.  
15 of the pens are green.  
The rest of the pens are red.

(a) What fraction of the pens in the box are red?

.....  
(1)

(b) Write down the ratio of the number of green pens to the number of red pens.  
Give your ratio in its simplest form.

.....  
(2)

**(Total for question = 3 marks)**

**(Q15 1MA1/3F/S2, Specimen papers )**

**Q85.**

In a year group there are 100 boys and 120 girls.

Write as a ratio the number of boys to the number of girls.  
Give your answer in its simplest form.

.....  
**(Total for question = 2 marks)**

**(Q13 1MA1/1F/M2, Specimen papers )**

**Q86.**

There are only red sweets and yellow sweets in a bag.

$\frac{2}{5}$  of the sweets are red.

Write down the ratio of red sweets to yellow sweets.

.....

**(Total for question = 1 mark)**

**(Q02 1MA1/2F/M1, Specimen papers )**

**Q87.**

There are 78 red counters and 52 yellow counters in a bag.

Write the ratio of the number of red counters to the number of yellow counters.

Give your ratio in its simplest form.

.....

**(Total for question = 2 marks)**

**(Q11 1MA1/3F/M1, Specimen papers )**