

Questions

Q1.

Here is the list of ingredients for making 30 biscuits.

Ingredients for 30 biscuits
225 g butter
110 g caster sugar
275 g plain flour
75 g chocolate chips

Lucas has the following ingredients.

- 900 g butter
- 1000 g caster sugar
- 1000 g plain flour
- 225 g chocolate chips

What is the greatest number of biscuits Lucas can make?
You must show your working.

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

(Q17 1MA1/2F, June 2018)

Q2.

Deon needs 50 g of sugar to make 15 biscuits.

She also needs

three times as much flour as sugar

two times as much butter as sugar

Deon is going to make 60 biscuits.

(a) Work out the amount of flour she needs.

..... g
(3)

Deon has to buy all the butter she needs to make 60 biscuits.
She buys the butter in 250 g packs.

(b) How many packs of butter does Deon need to buy?

.....
(2)

(Total for question = 5 marks)

(Q23 1MA1/1F, June 2019)

Q3.

Jamil makes a drink by mixing

1 part of orange squash with 9 parts of water.

He uses 750 millilitres of orange squash.

Jamil is going to put the drink he has mixed into 1 litre bottles.

Work out the greatest number of 1 litre bottles that Jamil can completely fill.

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

(Q15 1MA1/1F, Nov 2020)

Q4.

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.

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)

Q5.

Water flows through each of the pipes that fill a lake at the same rate.
It takes 4 of the pipes 12 hours to fill the lake.

Work out how many hours it would take 6 pipes to fill $\frac{1}{4}$ of the lake.

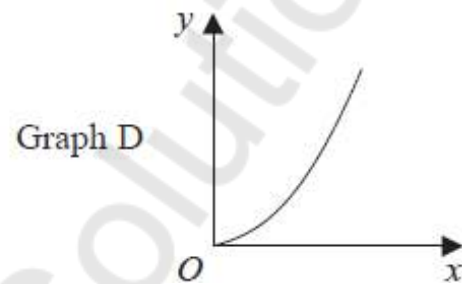
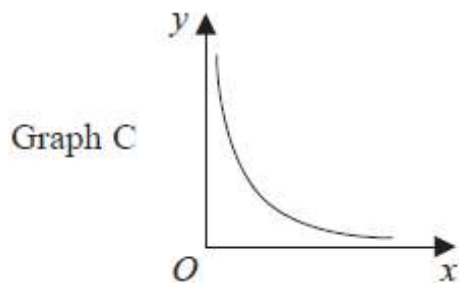
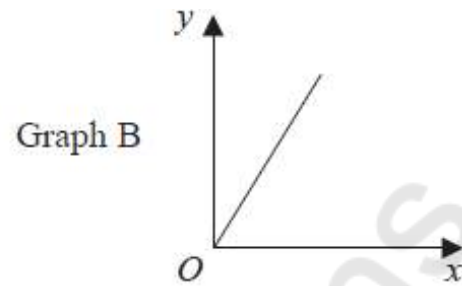
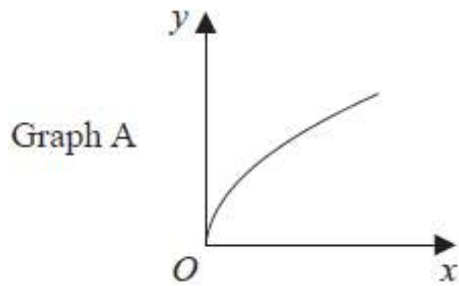
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..... hours

(Total for question = 3 marks)

(Q16 1MA1/2F, Nov 2022)

Q6.



The graphs of y against x represent four different types of proportionality.

Match each type of proportionality in the table to the correct graph.

Type of proportionality	Graph letter
$y \propto x$	
$y \propto x^2$	
$y \propto \sqrt{x}$	
$y \propto \frac{1}{x}$	

(Total for question = 2 marks)

(Q12 1MA1/2H, June 2018)

Q7.

Here is a list of ingredients for making 10 scones.

Ingredients for 10 scones
80 g butter
350 g self-raising flour
30 g sugar
2 eggs

Martin has

100 g butter
1 kg self-raising flour
50 g sugar
4 eggs

Martin wants to make 25 scones.
He has not got enough of some of the ingredients.

Work out how much more of each of these ingredients he needs.

(Total for question = 4 marks)

(Q20 1MA1/3F, Nov 2022)

Q8.

2 pens cost £2.38
5 folders cost £5.60

Ben wants to buy 20 pens and 20 folders.
He only has £50

Does Ben have enough money to buy 20 pens and 20 folders?
You must show how you get your answer.

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(Total for question = 4 marks)

(Q08 1MA1/3F, Nov 2018)

Q9.

Choci bar 200 g £3.50	Choci bar 360 g 7.20 Swiss francs
London	Zurich

In London, a 200 g Choci bar costs £3.50

In Zurich, a 360 g Choci bar costs 7.20 Swiss francs.

The exchange rate is £1 = 1.25 Swiss francs.

In which city is the Choci bar the better value for money, in London or in Zurich?

You must show how you get your answer.

(Total for question = 3 marks)

(Q03 1MA1/2H, Nov 2024)

Q10.

Andy flies from the UK to Japan.
His plane ticket costs £554

Andy then flies from Japan to Australia.
His plane ticket costs 70 140 Japanese Yen.
The exchange rate is £1 = 140 Japanese Yen.

Leila flies from the UK to Australia.
Her plane ticket costs 1860 Australian dollars.
The exchange rate is 1 Australian dollar = £0.62

Who pays more to fly from the UK to Australia, Andy or Leila?
You must show clearly how you get your answer.

(Total for question = 4 marks)

(Q18 1MA1/2F/M3, Specimen papers)

Q11.

400 g of raspberries and 300 g of strawberries cost a total of £7.46

500 g of strawberries cost £4.10

Work out the total cost of 200 g of raspberries and 200 g of strawberries.

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£

(Total for question = 4 marks)

(Q10 1MA1/3F/M3, Specimen papers)

Q12.

Batteries are sold in packs of 4, in packs of 8 and in packs of 12



£1.80



£3.20



£6.00

A pack of 4 batteries costs £1.80

A pack of 8 batteries costs £3.20

A pack of 12 batteries costs £6.00

Which pack gives the best value for money?

You must show how you get your answer.

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(Total for question = 3 marks)

(Q16 1MA1/1F, June 2024)

Q13.

Shahid is going to use these instructions to make a fizzy drink.

Mix 5 parts of orange juice
with 2 parts of lemonade

Shahid thinks that he has 300 m/ of orange juice and 200 m/ of lemonade.

(a) If Shahid is correct, what is the greatest amount of fizzy drink he can make?

..... m/
(3)

Shahid has 300 m/ of orange juice but he only has 160 m/ of lemonade.

(b) Does this affect the greatest amount of fizzy drink he can make?
Give a reason for your answer.

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

(1)

(Total for question = 4 marks)

(Q15 1MA1/1F, Nov 2018)

Q14.

It would take 120 minutes to fill a swimming pool using water from 5 taps.

(a) How many minutes will it take to fill the pool if only 3 of the taps are used?

..... minutes
(2)

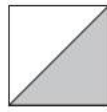
(b) State one assumption you made in working out your answer to part (a).

.....
.....
(1)

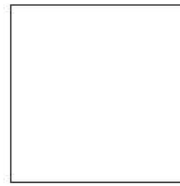
(Total for question = 3 marks)

Q15.

Here are two squares, **A** and **B**.



A



B

The length of the side of square **A** is 50% of the length of the side of square **B**.

Express the area of the shaded region of square **A** as a percentage of the area of square **B**.

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..... %

(Total for question = 3 marks)

(Q20 1MA1/1F, June 2019)

Q16.

There are 84 calories in 100 g of banana.

There are 87 calories in 100 g of yogurt.

Priti has 60 g of banana and 150 g of yogurt for breakfast.

Work out the total number of calories in this breakfast.

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(Total for question = 4 marks)

(Q17 1MA1/2F, June 2019)

Q17.

A company has to make a large number of boxes.

The company has 6 machines.

All the machines work at the same rate.

When all the machines are working, they can make all the boxes in 9 days.

The table gives the number of machines working each day.

	day 1	day 2	day 3	all other days
Number of machines working	3	4	5	6

Work out the total number of days taken to make all the boxes.

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

(Q09 1MA1/3H, June 2019)

Q18.

The number of days, d , that it will take to build a house is given by

$$d = \frac{720}{n}$$

where n is the number of workers used each day.

Ali's company will take 40 days to build the house.

Hayley's company will take 30 days to build the house.

Hayley's company will have to use more workers each day than Ali's company.

How many more?

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

(Q08 1MA1/2H, Nov 2019)

Q19.

Here are the ingredients needed to make 16 biscuits.

<p style="text-align: center;">Biscuits</p> <p style="text-align: center;">Ingredients to make 16 biscuits</p> <p style="text-align: center;">175 g of butter 75 g of sugar 250 g of flour</p>
--

Anna has

500 g of butter
300 g of sugar
625 g of flour

Work out the greatest number of biscuits Anna can make.

.....

(Total for question = 3 marks)

(Q19 1MA1/2F, Nov 2019)

Q20.

The number of days, d , that it will take to build a house is given by

$$d = \frac{720}{n}$$

where n is the number of workers used each day.

Ali's company will take 40 days to build the house.

Hayley's company will take 30 days to build the house.

Hayley's company will have to use more workers each day than Ali's company.

How many more?

Mathvault.io Solutions

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

(Q28 1MA1/2F, Nov 2019)

Q21.

Heidi wants to make some biscuits using this recipe.

Makes 12 biscuits
125 g butter
200 g flour
50 g sugar

Heidi thinks that she has,

500 g butter
700 g flour
250 g sugar

Assuming that these weights are correct,

(a) work out the greatest number of biscuits Heidi can make.

You must show all your working.

.....
(4)

Heidi is wrong.
She has more than 250 g of sugar.

(b) Does this affect the greatest number of biscuits Heidi can make?

Give a reason for your answer.

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

(1)

(Total for question = 5 marks)

(Q17 1MA1/1F, Nov 2021)

Q22.

On Monday, 12 people took 5 hours to clean a number of cars.
On Tuesday, 15 people cleaned the same number of cars.

Assuming that all the people worked at the same rate,

(a) work out how many hours the 15 people took to clean the cars.

..... hours
(2)

The assumption is wrong.

(b) How might this affect the time taken for the 15 people to clean the cars?

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

(1)

(Total for question = 3 marks)

Q23.

Here is a list of ingredients for making 10 scones.

Ingredients for 10 scones	
75 g	butter
350 g	self-raising flour
40 g	sugar
150 ml	milk
2	eggs

Mia wants to make 25 scones.
Work out how much sugar she needs.

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..... 9

(Total for question = 2 marks)

(Q18 1MA1/1F, June 2022)

Q24.

Kieron has 13 workers he can use for a job.

He knows that 6 workers would take $14\frac{1}{2}$ days to complete this job.

Show that Kieron has enough workers to finish this job in less than 7 days.

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(Total for question = 3 marks)

(Q11 1MA1/2H, June 2022)

Q25.

Here is the list of ingredients for making 20 biscuits.

Ingredients for 20 biscuits	
150 g	butter
100 g	sugar
250 g	flour

Harry wants to make 60 biscuits.

How much flour does Harry need?

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..... g

(Total for question = 2 marks)

(Q16 1MA1/1F, June 2023)

Q26.

Ali buys packs of balloons and boxes of pencils.

There are 30 balloons in each pack.

There are 24 pencils in each box.

Ali buys exactly the same number of balloons and pencils.

Work out how many packs of balloons and how many boxes of pencils she could have bought.
You must show all your working.

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..... packs of balloons

..... boxes of pencils

(Total for question = 3 marks)

(Q24 1MA1/3F, Nov 2023)

Q27.

A company orders a large number of plates from a factory.

It would take 30 hours to make all the plates using 4 machines.

How many machines are needed to make all the plates in 6 hours?

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

(Q25 1MA1/3F, Nov 2023)

Q28.

Ali buys packs of balloons and boxes of pencils.

There are 30 balloons in each pack.

There are 24 pencils in each box.

Ali buys exactly the same number of balloons and pencils.

Work out how many packs of balloons and how many boxes of pencils she could have bought.
You must show all your working.

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..... packs of balloons

..... boxes of pencils

(Total for question = 3 marks)

(Q05 1MA1/3H, Nov 2023)

Q29.

A company orders a large number of plates from a factory.

It would take 30 hours to make all the plates using 4 machines.

How many machines are needed to make all the plates in 6 hours?

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

(Q06 1MA1/3H, Nov 2023)

Q30.

Here are the ingredients needed to make 20 peanut butter cookies.

Makes 20 cookies
250 g peanut butter
200 g sugar
2 small eggs

Derek wants to make 60 cookies.

He has 900 g of peanut butter.

Does Derek have enough peanut butter to make 60 cookies?
You must show how you get your answer.

(Total for question = 3 marks)

(Q10 1MA1/1F, Nov 2023)

Q31.

Here are the ingredients needed to make 20 shortbread biscuits.

Ingredients for 20 shortbread biscuits	
120 g	of butter
200 g	of flour
50 g	of sugar

Heidi wants to make 30 shortbread biscuits.

How much of each ingredient will Heidi need?

butter g

flour g

sugar g

(Total for question = 3 marks)

(Q17 1MA1/3F, June 2024)

Q32.

3 kg of carrots cost £1.80

2 kg of carrots and 5 kg of potatoes cost a total of £3.45

Work out the total cost of 4 kg of carrots and 2 kg of potatoes.
You must show all your working.

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£

(Total for question = 4 marks)

(Q14 1MA1/1F, Nov 2021)

Q33.

£360 is shared between Abby, Ben, Chloe and Denesh.

The ratio of the amount Abby gets to the amount Ben gets is 2 : 7

Chloe and Denesh each get 1.5 times the amount Abby gets.

Work out the amount of money that Ben gets.

Mathvault.io Solutions

£

(Total for question = 4 marks)

(Q26 1MA1/2F, June 2019)

Q34.

3 kg of meat costs £54
Nina buys 2 kg of the meat.

Work out how much Nina pays.

£

(Total for question = 2 marks)

(Q08 1MA1/1F, June 2018)

Q35.

It takes 12 men 5 days to complete a job.

(a) Work out how many days it would take 3 men to complete the same job.

.....
(2)

(b) (i) State one assumption you made in working out your answer.

.....
(1)

(ii) How will your answer be affected if your assumption is **not** correct?

.....
.....
(1)

(Total for question = 4 marks)

(Q05 1MA1/1H/M2, Specimen papers)

Q36.

Here is a list of ingredients for making 20 gingerbread men.

350 g flour
10 g ground ginger
100 g butter
175 g brown sugar
60 g syrup
1 egg

Sue has,

- 1 kg flour
- 200 g ground ginger
- 500 g butter
- 600 g brown sugar
- 100 g syrup
- 2 eggs

Sue wants to make 60 gingerbread men.
She has not got enough of all the ingredients.

(a) Work out how much more of each ingredient she needs.

(4)

On a different day Sue wants to make 50 gingerbread men.
She has no eggs.
She works out she needs to buy at least 3 eggs.

(b) Explain why she needs to buy at least 3 eggs.

.....
.....

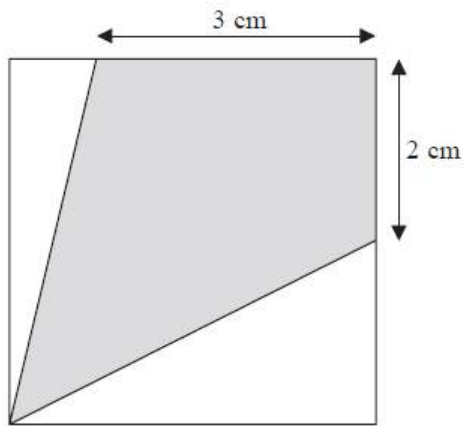
(1)

(Total for question = 5 marks)

(Q15 1MA1/2F/M2, Specimen papers)

Q37.

The diagram shows a square with perimeter 16 cm.



Work out the proportion of the area inside the square that is shaded.

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.....

(Total for question = 5 marks)

(Q02 1MA1/1H/S2, Specimen papers)

Q38.

ABC is a straight line.



The length AB is five times the length BC .
 $AC = 90$ cm.

Work out the length AB .

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..... cm

(Total for question = 3 marks)

(Q10 1MA1/3F, June 2017)

Q39.

Three companies sell the same type of furniture.

The price of the furniture from Pooles of London is £1480

The price of the furniture from Jardins of Paris is €1980

The price of the furniture from Outways of New York is \$2250

The exchange rates are

$$£1 = €1.34$$

$$£1 = \$1.52$$

Which company sells this furniture at the lowest price?

You must show how you get your answer.

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(Total for question is 3 marks)

(Q21 1MA1/2F/S1, Specimen papers)

Q40.

In London, 1 litre of petrol costs 108.9p

In New York, 1 US gallon of petrol costs \$2.83

1 US gallon = 3.785 litres

£1 = \$1.46

In which city is petrol better value for money, London or New York?

You must show your working.

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(Total for question = 3 marks)

(Q02 1MA1/3H, Nov 2017)

Q41.

Andy went on holiday to Canada.
His flights cost a total of £1500

Andy stayed for 14 nights.
His hotel room cost \$196 per night.

Andy used wifi for 12 days.
Wifi cost \$5 per day.

The exchange rate was \$1.90 to £1

- (a) Work out the total cost of the flights, the hotel room and Wi-Fi.
Give your answer in pounds.

£

(5)

- (b) If there were fewer dollars to £1, what effect would this have on the total cost, in pounds, of Andy's holiday?

.....

(1)

(Total for question = 6 marks)

Q42.

Yesterday it took 5 cleaners $4\frac{1}{2}$ hours to clean all the rooms in a hotel.

There are only 3 cleaners to clean all the rooms in the hotel today.

Each cleaner is paid £8.20 for each hour or part of an hour they work.

How much will each cleaner be paid today?

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£

(Total for question = 3 marks)

(Q09 1MA1/2H, Nov 2017)

Q43.

Here are the instructions for making a drink.

Add 100 ml of juice to 2 litres of water

Dev uses 5 litres of water to make the drink.

How much drink has he made?

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

(Q06 1MA1/1F/S2, Specimen papers)

Q44.

3 jars of paprika and 4 packets of sage have a total weight of 290 grams.
7 jars of paprika have a total weight of 210 grams.

Work out the total weight of 2 jars of paprika and 2 packets of sage.

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..... 9

(Total for question = 4 marks)

(Q15 1MA1/1F/M2, Specimen papers)

Q45.

8 identical pens cost £12
Work out the cost of 10 of these pens.

£

(Total for question = 2 marks)

(Q08 1MA1/1F/S2, Specimen papers)

Q46.

5 tins of soup have a total weight of 1750 grams.
4 tins of soup and 3 packets of soup have a total weight of 1490 grams.

Work out the total weight of 3 tins of soup and 2 packets of soup.

..... grams

(Total for question = 4 marks)

(Q17 1MA1/1F, June 2017)

Q47.

A company orders a number of bottles from a factory.

The 8 machines in the factory could make all the bottles in 5 days.
All the machines work at the same rate.

For 2 days, only 4 machines are used to make the bottles.
From the 3rd day, all 8 machines are used to make the bottles.

Work out the total number of days taken to make all the bottles.

..... days

(Total for question = 3 marks)

(Q09 1MA1/1H/M1, Specimen papers)

Q48.

Jane made some almond biscuits which she sold at a fete.

She had:

5 kg of flour

3 kg of butter

2.5 kg of icing sugar

320 g of almonds

Here is the list of ingredients for making 24 almond biscuits.

Ingredients for 24 almond biscuits

150 g flour

100 g butter

75 g icing sugar

10 g almonds

Jane made as many almond biscuits as she could, using the ingredients she had.

Work out how many almond biscuits she made.

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

(Q19 1MA1/2F/N, Specimen papers)

Q49.

Here is a list of ingredients for making chocolate mousse for 2 people.

Chocolate mousse for 2 people	
40 grams	sugar
110 grams	dark chocolate
2	eggs
$\frac{1}{4}$	teaspoon lemon juice

Ellie has 250 grams of sugar and 550 grams of dark chocolate.
She assumes that she has plenty of lemon juice and plenty of eggs.

- (a) What is the greatest number of people Ellie can make chocolate mousse for?
You must justify your answer.

(3)

Ellie only has 6 eggs.

- (b) What effect would this have on the greatest number of people Ellie can make chocolate mousse for?

.....
.....

(1)

(Total for question = 4 marks)

(Q15 1MA1/2F/S2, Specimen papers)

Q50.

Here is a list of ingredients for making 16 mince pies.

Ingredients for 16 mince pies	
240 g of butter	
350 g of flour	
100 g of sugar	
280 g of mincemeat	

Elaine wants to make 72 mince pies.

How much of each ingredient will Elaine need?

butter g

flour g

sugar g

mincemeat g

(Total for question is 3 marks)

(Q18 1MA1/2F/S1, Specimen papers)

Q51.

Here are the ingredients needed to make 20 walnut biscuits.

Walnut biscuits	
Ingredients to make 20 biscuits	
50 g	butter
100 g	caster sugar
40 g	flour
50 g	walnuts
2	egg whites

Liz wants to make 50 walnut biscuits.

Work out the amount of each ingredient she needs.

butter g
caster sugar g
flour g
walnuts g
egg whites

(Total for question = 3 marks)

(Q16 1MA1/3F/M1, Specimen papers)

Q52.

Here is a list of ingredients for making 16 flapjacks.

Ingredients for 16 flapjacks
120 g butter
140 g brown sugar
250 g oats
2 tablespoons syrup

Jenny wants to make 24 flapjacks.

Work out how much of each of the ingredients she needs.

butter g

brown sugar g

oats g

syrup tablespoons

(Total for question = 3 marks)

(Q19 1MA1/1F, Nov 2017)

Q53.

The total weight of 3 tins of beans and 4 jars of jam is 2080 g.

The total weight of 5 tins of beans is 2000 g.

Work out the weight of 1 tin of beans and the weight of 1 jar of jam.

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tin of beans g

jar of jam g

(Total for question = 4 marks)

(Q14 1MA1/3F/N, Specimen papers)

Q54.

Adrian is going to make concrete.

He is going to use

180 kg of cement

375 kg of sand

1080 kg of stone

Cement, sand and stone are sold in bags.

1 bag cement	1 bag sand	1 bag stone
25 kg	22.5 kg	50 kg

Adrian already has

10 bags of cement

20 bags of sand

20 bags of stone

Work out what bags he needs to buy to make the concrete.

(Total for question = 3 marks)

(Q17 1MA1/2F, Nov 2018)

Q55.

Asif is going on holiday to Turkey.

The exchange rate is $\text{£}1 = 3.5601$ lira.

Asif changes $\text{£}550$ to lira.

- (a) Work out how many lira he should get.
Give your answer to the nearest lira.

..... lira
(2)

Asif sees a pair of shoes in Turkey.
The shoes cost 210 lira.

Asif does not have a calculator.
He uses $\text{£}2 = 7$ lira to work out the approximate cost of the shoes in pounds.

- (b) Use $\text{£}2 = 7$ lira to show that the approximate cost of the shoes is $\text{£}60$

(2)

- (c) Is using $\text{£}2 = 7$ lira instead of using $\text{£}1 = 3.5601$ lira a sensible start to Asif's method to work out the cost of the shoes in pounds?

You must give a reason for your answer.

.....
.....

(1)

(Total for question = 5 marks)

(Q19 1MA1/3F/N, Specimen papers)

Q56.

2.5 kg of apples cost £3.60

Work out the cost of 3.5 kg of apples.

£

(Total for question = 2 marks)

(Q12 1MA1/3F, Nov 2017)

Q57.

David has twice as many cousins as Becky.
Becky has twice as many cousins as Nishat.

Nishat has 6 cousins.

How many cousins does David have?

.....

(Total for question = 2 marks)

(Q07 1MA1/3F, June 2018)