

Edexcel GCSE

Mathematics (Linear) – 1MA0

PROPORTION

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil

**Instructions**

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk (*)** are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

Advice

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1. Here is a list of ingredients for making 10 Flapjacks.

Ingredients for 10 Flapjacks	
80 g	rolled oats
60 g	butter
30 ml	golden syrup
36 g	light brown sugar

Ingredients for 5
40g
30g
15ml
18g

Work out the amount of each ingredient needed to make 15 Flapjacks.

For 15 Flapjacks

$80 + 40 =$	120 g
$60 + 30 =$	90 g
$30 + 15 =$	45 ml
$36 + 18 =$	54 g

.....**120**..... g rolled oats

.....**90**..... g butter

.....**45**..... ml golden syrup

.....**54**..... g light brown sugar

(Total 3 marks)

2. Fred has a recipe for 30 biscuits.

Here is a list of ingredients for 30 biscuits.

Self-raising flour : 230g
Butter : 150g
Caster sugar : 100g
Eggs : 2

for 15 biscuits

115g
75g
50g
1

Fred wants to make 45 biscuits.

(a) Complete his new list of ingredients for 45 biscuits.

$230 + 115$
 $150 + 75$
 $100 + 50$
 $2 + 1$

Self-raising flour : 345g.....
Butter : 225g.....
Caster sugar : 150g.....
Eggs : 3.....
(3)

Gill has only 1 kilogram of self-raising flour. She has plenty of the other ingredients.

(b) Work out the maximum number of biscuits that Gill could bake.

1 kilogram = 1000g

230g = 30 biscuits
460g = 60 biscuits
690g = 90 biscuits
920g = 120 biscuits

230g = 30 biscuits

10 biscuits = $230 \div 3 = 76.666$

80g left.

can make another 10 biscuits
130 altogether

130 biscuits

(3)

(6 marks)

3. Here are the ingredients needed to make 16 gingerbread men.

Ingredients to make 16 gingerbread men	
180 g	flour
40 g	ginger
110 g	butter
30 g	sugar

8 gingerbread men

90g flour
20g ginger
55g butter
15g sugar

Hamish wants to make 24 gingerbread men.
Work out how much of each of the ingredients he needs.

$$24 = 16 + 8$$

flour = $180 + 90 = 270g$
ginger = $40 + 20 = 60g$
butter = $110 + 55 = 165g$
sugar = $30 + 15 = 45g$

..... 270g flour
..... 60g ginger
..... 165g butter
..... 45g sugar

(3 marks)

4. Here are the ingredients needed to make 12 shortcakes.

Shortcakes	
Makes 12 shortcakes	
50 g	of sugar
200 g	of butter
200 g	of flour
10 ml	of milk

Liz makes some shortcakes.
She uses 25 ml of milk.

- (a) How many shortcakes does Liz make?

$$25 \text{ ml} = 10 \text{ ml} + 10 \text{ ml} + 5 \text{ ml}.$$
$$12 + 12 + 6 \text{ biscuits}$$

30 biscuits

(2)

Robert has 500 g of sugar
1000 g of butter
1000 g of flour
500 ml of milk

- (b) Work out the greatest number of shortcakes Robert can make.

$$500 \text{ g} \div 50 \text{ g} = 10$$
$$1000 \text{ g} \div 200 \text{ g} = 5$$
$$1000 \text{ g} \div 200 \text{ g} = 5.$$
$$500 \text{ ml} \div 10 \text{ ml} = 50$$

He can make the recipe 5 times
so he will make $5 \times 12 = 60$ biscuits

60 biscuits

(2)

(4 marks)

5. Here is a list of ingredients for making 12 small cakes.

Ingredients for 12 small cakes
180 g margarine
180 g sugar
200 g plain flour
1 teaspoon baking powder
2 eggs

Joe is going to make 24 of the small cakes.

(a) Work out how much margarine he needs.

(2)

$$2 \times 180 \text{ g} =$$

..... 360 g

Sharon is going to make 18 of the small cakes.

(b) Work out how much flour she needs.

(2)

$$\begin{array}{l} 12 \text{ cakes} = 200 \text{ g flour} \\ 6 \text{ cakes} = 100 \text{ g flour} \\ 18 \text{ cakes} = 300 \text{ g flour} \end{array}$$

..... 300 g
(Total for Question 4 = 4 marks)

*6. This is a list of ingredients for making a pear & almond crumble for 4 people.

Ingredients for 4 people:
80 g plain flour
60 g ground almonds
90 g soft brown sugar
60 g butter
4 ripe pears

Ingredients for 2 people
40g
30g
45g
30g
2

Jessica wants to make a pear & almond crumble for 10 people.

Here is a list of the amount of each ingredient Jessica has in her cupboard.

- 250 g plain flour
- 100 g ground almonds
- 200g soft brown sugar
- 150 g butter
- 8 ripe pears

Work out which ingredients Jessica needs to buy more of.
You must show all of your working.

$$10 \text{ people} = 4 + 4 + 2$$

Jessica needs:

$$\begin{aligned} \text{flour} &= 80\text{g} + 80\text{g} + 40\text{g} = 200\text{g} \\ \text{almonds} &= 60\text{g} + 60\text{g} + 30\text{g} = 150\text{g} \\ \text{sugar} &= 90\text{g} + 90\text{g} + 45\text{g} = 225\text{g} \\ \text{butter} &= 60\text{g} + 60\text{g} + 30\text{g} = 150\text{g} \\ \text{pears} &= 4 + 4 + 2 = 10 \end{aligned}$$

Jessica needs to buy 50g of flour
50g of almonds
25g of sugar
2 pears.

She has enough butter

(4 marks)

*7. 225 grams of flour are needed to make 9 cakes.

Marian wants to make 20 of these cakes.
She has 475 grams of flour.

Does Marian have enough flour to make 20 cakes?
You must show all your working.

225g for 9 cakes

$$225g \div 9 = 25g$$

Marian needs 25g of flour for 1 cake.

To make 20 cakes she needs $20 \times 25g = 500g$

Marian has 475 grams of flour. She does not
have enough. She needs 25grams more

$$\begin{array}{r} 500g \\ - 475g \\ \hline 25g \end{array}$$

(3 marks)
