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

$80 + 40 = 120 g$

$60 + 30 = 90 g$

$30 + 15 = 45 ml.$

$36 + 18 = 54g$

.......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.

   for 15 biscuits

   Self-raising flour : 230g   115g
   Butter   : 150g   75g
   Caster sugar   : 100g   50g
   Eggs   : 2   1

   Fred wants to make 45 biscuits.

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

   230 + 115   Self-raising flour : 345g
   150 + 75   Butter   : 225g
   100 + 50   Caster sugar   : 150 g
   2 + 1   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   80g left.
   10 biscuts = 230 ÷ 3 = 76.666   can make another 10 biscuits
                               130 altogether

   130 biscuits

   (3)

   (6 marks)

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

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┌─────────────────────────────────┐
│          Ingredients            │
│    to make 16 gingerbread men   │
│                                 │
│        180 g   flour            │
│         40 g   ginger           │
│        110 g   butter           │
│         30 g   sugar            │
└─────────────────────────────────┘
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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 = 60 g
butter = 110 + 55 = 165g
sugar = 30 + 15 = 45g

............270............g flour

............60............g ginger

............165............g butter

............45............g sugar

(3 marks)

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

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┌─────────────────────────────┐
│        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?

$25ml = 10ml + 10ml + 5ml$.

$12 + 12 + 6$ 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.

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

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)

$$2 \times 180g =$$

.... 360 .... g

Sharon is going to make 18 of the small cakes.

(b) Work out how much flour she needs.

(2)

12 cakes = 200g Flour
6 cakes = 100g Flour

18 cakes = 300g Flour

.... 300 g .... 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
30 g
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 people = 4 + 4 + 2

Jessica needs :

flour = 80g + 80g + 40g = 200g
almonds = 60g + 60g + 30g = 150g
sugar = 90g + 90g + 45g = 225g
butter = 60g + 60g + 30g = 150g
pears = 4 + 4 + 2 = 10

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)