



Level 1/Level 2 Certificate  
Foundation Level  
June 2015

## Use of Mathematics

**43503F/PM**

Core unit

## Preliminary Material

## Data Sheet

To be opened and issued to candidates between  
Monday 27 April 2015 and Monday 11 May 2015

### REMINDER TO CANDIDATES

YOU MUST **NOT** BRING THIS DATA SHEET  
WITH YOU WHEN YOU SIT THE EXAMINATION.  
A CLEAN COPY WILL BE MADE AVAILABLE.

### INFORMATION

The Preliminary Material is to be seen by teachers and candidates **only**, for use during preparation for the examination on Monday 18 May 2015. It **cannot** be used by anyone else for any other purpose, other than as stated in the instructions issued, until after the examination date has passed. It must **not** be provided to third parties.

## Road signs and road safety



No right turn

Road signs are used to give information or instructions to road users. Road signs giving instructions are usually there to maintain road safety.

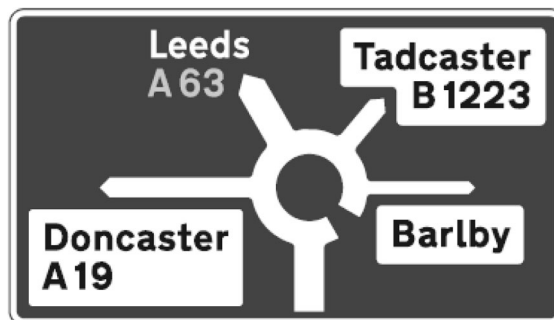
Some road signs are circular. The shape of other road signs may be modelled by triangles or rectangles. Examples of each are shown below.



No motor vehicles



Bend to right



Roundabout ahead

Road signs are made in different sizes. The size of a sign depends on the speed limit of the road. Signs on motorways are larger than signs on other roads.

**Food recipes**

A recipe consists of a list of ingredients for a food dish along with instructions explaining how to prepare and cook the dish. The recipe usually says how many people the dish will serve.

Part of a recipe for blackberry and apple crumble is given below. There are two lists of ingredients – one list for the filling and one list for the topping.

For the filling

- 500 g cooking apples, peeled, cored and sliced
- 25 g butter
- 75 g caster sugar
- 250 g blackberries

For the topping

- 225 g plain flour
- 175 g butter
- 55 g demerara sugar
- 125 g muesli or a mixture of oats, seeds and chopped nuts

The recipe says that this dish will serve 6 people.

**Turn over**

**Turn over ►**

**Air temperature**

Weather stations record many measurements of weather conditions, such as wind speed and direction, rainfall and air temperature. There are more than 200 weather stations around the United Kingdom.



A typical weather station

Weather stations in Glasgow and London record air temperatures each day.

The table shows the lowest and highest temperatures for every day of one week in March 2013 in Glasgow.

Day	Glasgow	
	Lowest temperature (°C)	Highest temperature (°C)
Sunday	5	8
Monday	-1	8
Tuesday	-3	9
Wednesday	3	6
Thursday	5	7
Friday	4	5
Saturday	2	4

Over the thirty-year period from 1981 to 2010, the lowest and highest mean monthly temperatures for London were recorded. The table below shows these data.

Month	London	
	Lowest mean temperature (°C)	Highest mean temperature (°C)
January	3.1	8.1
February	2.7	8.6
March	4.6	11.6
April	5.9	14.6
May	8.9	18.1
June	11.8	21.0
July	13.7	23.4
August	13.8	23.1
September	11.4	20.0
October	8.8	15.5
November	5.8	11.3
December	3.4	8.4

Temperature can be measured in degrees Fahrenheit,  $F$ , or degrees Celsius,  $C$ . These are connected using the two formulae below.

$$F = \frac{9}{5}C + 32$$

$$C = \frac{5}{9}(F - 32)$$

**Turn over**

**Turn over ►**

**Delivery charges**

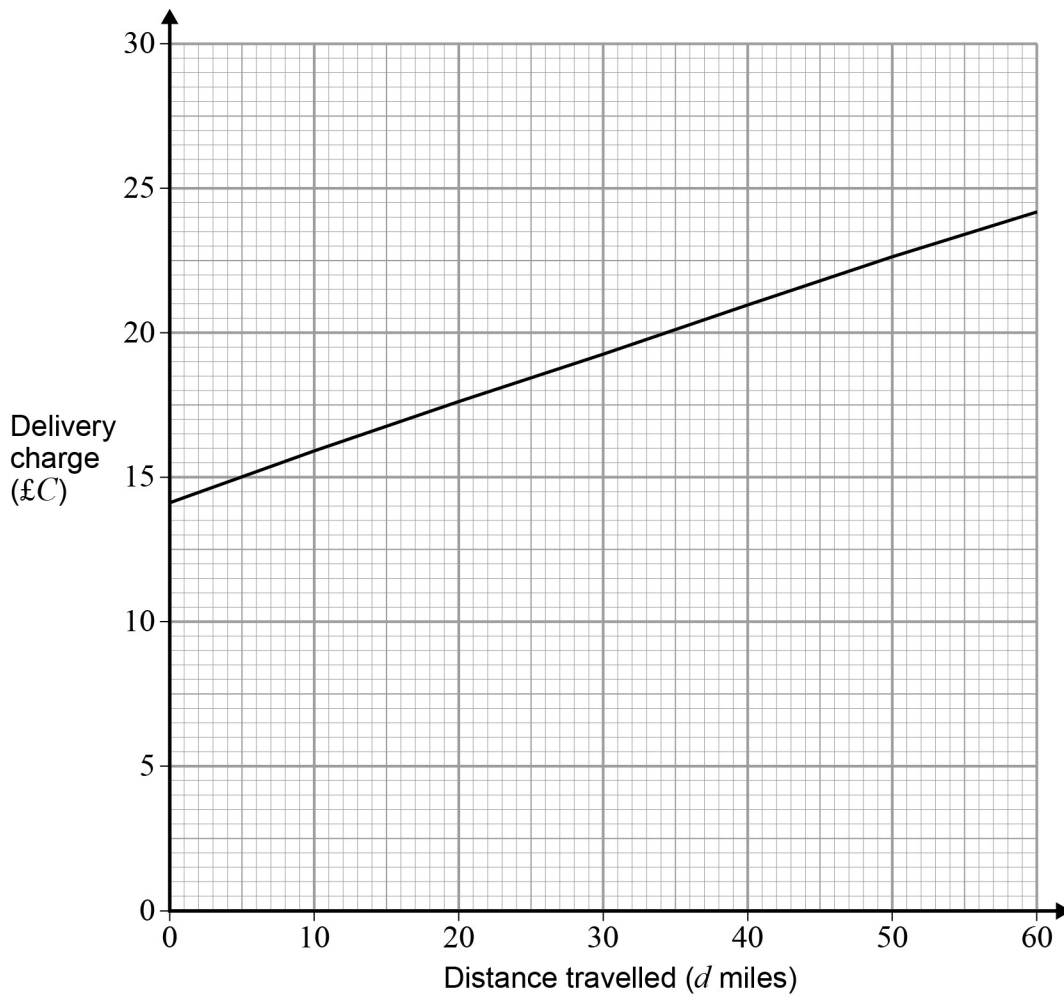
The delivery charge for a courier service often includes a fixed cost,  $\pounds F$ , plus a cost depending on the distance travelled,  $d$  miles.

For example, a formula for the delivery charge,  $\pounds C$ , might be given by

$$C = ad + F$$

where  $a$  is a constant.

The graph shows the delivery charges,  $\pounds C$ , for values of  $d$  from 0 to 60 miles for one particular courier.



The delivery charge for a courier service is sometimes more complex than this linear model.

**END OF DATA SHEET**

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