Write your name here

Surname

Other names

**Edexcel GCSE**

Centre Number

Candidate Number

## Mathematics B
### Unit 1: Statistics and Probability (Calculator)

**Foundation Tier**

Sample Assessment Material
**Time: 1 hour 15 minutes**

Paper Reference
**5MB1/1F**

**You must have:**
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

## 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**.
- If your calculator does not have a $\pi$ button, take the value of $\pi$ to be 3.142 unless the question instructs otherwise.

## Information
- The total mark for this paper is 60.
- 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 with your spelling, punctuation and grammar, as well as the clarity of expression, on these questions.*

## 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.
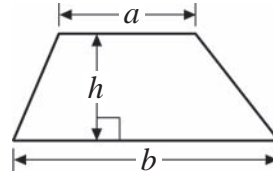
S 3 7 7 2 5 A 0 1 1 8

*Turn over*

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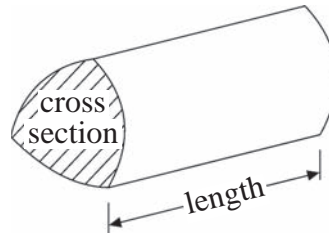
**GCSE Mathematics 2MB01**

Formulae: Foundation Tier

**You must not write on this formulae page.**
**Anything you write on this formulae page will gain NO credit.**

**Area of trapezium** = $\frac{1}{2}(a + b)h$

**Volume of prism** = area of cross section × length

**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**1** Hannah carried out a survey of 20 people at a Fitness Centre.
She asked them which activity they liked best.

Here are her results.

| | | | | |
|---|---|---|---|---|
| Gym | Tennis | Squash | Swimming | Gym |
| Swimming | Gym | Tennis | Gym | Squash |
| Gym | Tennis | Squash | Tennis | Squash |
| Squash | Gym | Swimming | Gym | Swimming |

(a) Complete the table to show Hannah's results.

**(2)**

| Activity | Tally | Frequency |
|---|---|---|
| Gym | | |
| Tennis | | |
| Squash | | |
| Swimming | | |

(b) Write down the number of people who liked Squash the best.

**(1)**

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(c) Which activity was liked best by the most people?

**(1)**

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**(Total for Question 1 = 4 marks)**

**2** Mandy lives in Weymouth.
She is planning a shopping trip to Bournemouth.
She will travel by train.

Here is part of the train timetable from Weymouth to Southampton and from Southampton to Weymouth.

| Weymouth to Southampton | | | | | |
|---|---|---|---|---|---|
| Weymouth | 0903 | 1003 | 1103 | 1203 | 1303 |
| Dorchester | 0913 | 1013 | 1113 | 1213 | 1313 |
| Poole | 0940 | 1040 | 1140 | 1240 | 1340 |
| Bournemouth | 0953 | 1053 | 1153 | 1253 | 1353 |
| Brockenhurst | 1020 | 1120 | 1220 | 1320 | 1420 |
| Southampton | 1026 | 1126 | 1226 | 1326 | 1426 |

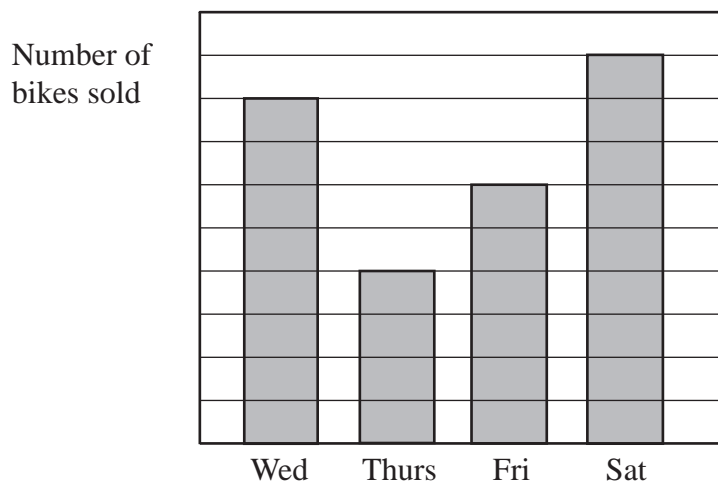| Southampton to Weymouth | | | | | |
|---|---|---|---|---|---|
| Southampton | 1224 | 1324 | 1424 | 1524 | 1624 |
| Brockenhurst | 1237 | 1337 | 1437 | 1537 | 1637 |
| Bournemouth | 1300 | 1400 | 1500 | 1600 | 1700 |
| Poole | 1335 | 1435 | 1535 | 1635 | 1735 |
| Dorchester | 1344 | 1444 | 1544 | 1644 | 1744 |
| Weymouth | 1355 | 1455 | 1555 | 1655 | 1755 |

It takes Mandy 25 minutes to walk from home to the train station at Weymouth.
She wants to be in Bournemouth for 3 hours.

Plan a schedule for Mandy's shopping trip.

| | Time |
|---|---|
| Mandy leaves home | |
| Train departs Weymouth | |
| Train arrives Bournemouth | |
| Train leaves Bournemouth (Mandy comes home) | |
| Train arrives Weymouth | |
| Mandy arrives home | |

**(Total for Question 2 = 5 marks)**

**3** The bar chart shows the numbers of bikes a shop sold on Wednesday, Thursday, Friday and Saturday.



Michael started to draw a pictogram to show the **same** information.
He has shown the number of bikes sold on Wednesday.
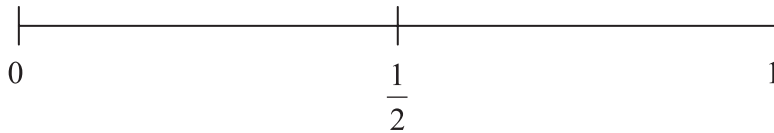
Complete the pictogram.

| Wednesday |  |
|-----------|---|
| Thursday | |
| Friday | |
| Saturday | |

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

**4** Liam rolls an ordinary dice.

(a) On the probability scale below, mark with a cross (✗) the probability that he gets a number less than 7

**(1)**

```
├────────────────┼────────────────┤
0                 1                 1
                  ─
                  2
```
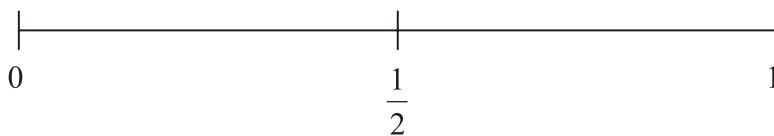
A bag contains 3 blue counters and 1 red counter.
Kenneth takes at random one counter from the bag.

(b) On the probability scale below, mark with a cross (✗) the probability that he takes a red counter.

**(1)**

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├────────────────┼────────────────┤
0                 1                 1
                  ─
                  2
```

Terry spins a coloured spinner.
The probability that the spinner will land on green is 0.25

The probability that the spinner will land on yellow is 0.35

(c) (i)  Write 0.25 as a fraction.

**(1)**

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(ii)  Write 0.35 as a percentage.

**(1)**

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A weather forecaster says that the probability it will rain tomorrow is *s*.

(d) Write down, in terms of *s*, the probability that it will **not** rain tomorrow.

**(1)**

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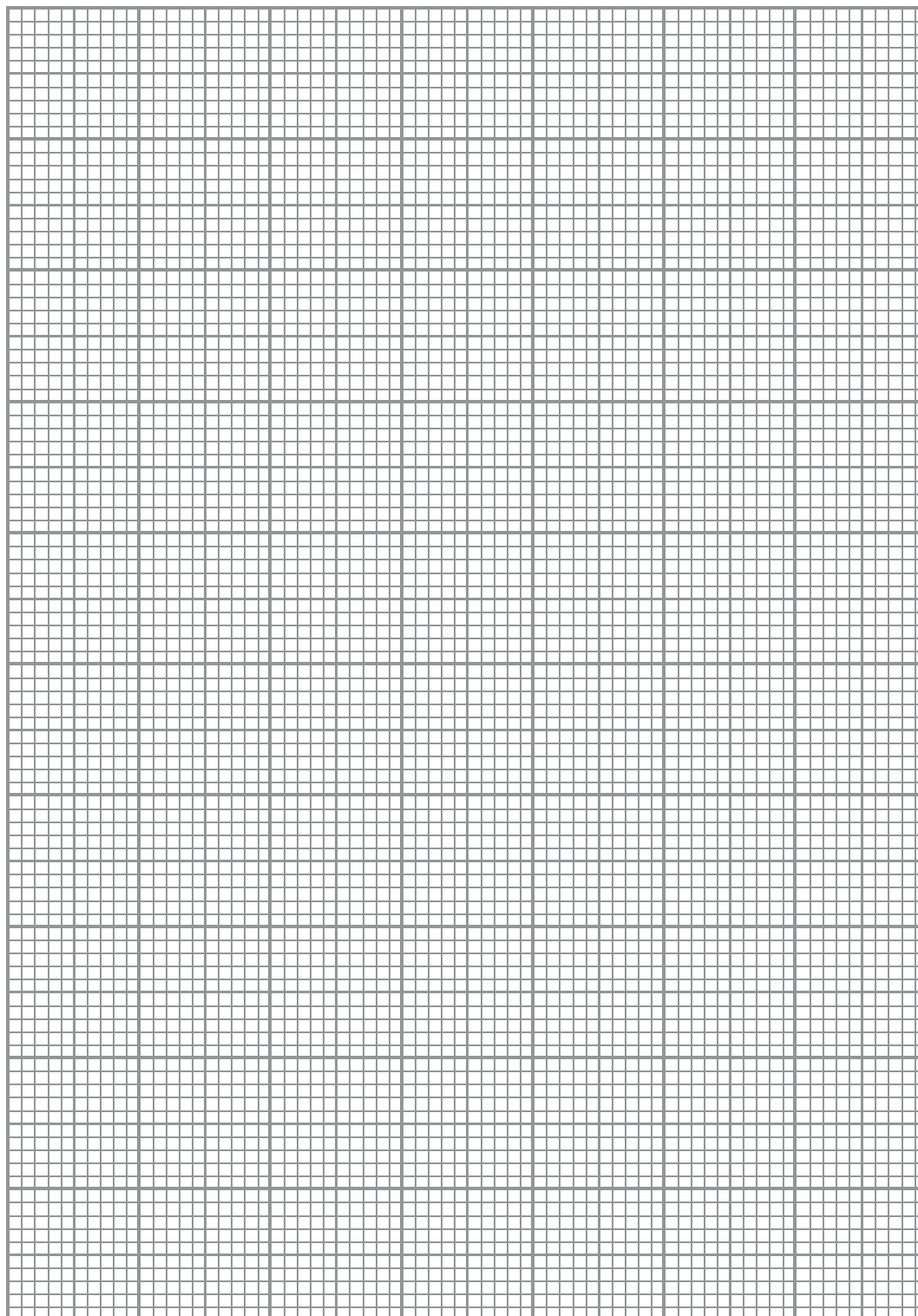
**(Total for Question 4 = 5 marks)**

**\*5** The table shows information about some students' favourite pets.

| | Cat | Dog | Rabbit | Hamster | Goldfish |
|---|---|---|---|---|---|
| **Boys** | 6 | 12 | 4 | 10 | 5 |
| **Girls** | 10 | 7 | 6 | 5 | 5 |

On the grid, represent this information in a suitable diagram or chart.

**(Total for Question 5 = 4 marks)**

**6** Ishmael has four white cards and three grey cards.

| A | B | C | D | 1 | 2 | 3 |

Ishmael takes at random one white card and one grey card.

(a) Show all the possible outcomes he could get.

(2)

Ishmael takes at random one white card and one grey card.

(b) Work out the probability that he will get a C and a 3.

(1)

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**(Total for Question 6 = 3 marks)**

**\*7** Harry and Edith are planning their holiday.
They want to travel by airplane.
They can travel with one of three airplane companies, Aireways, King Lingus
or Easy Plane.
The tables show the cost per adult and the cost per child to travel with each airplane
company.

| Aireways | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | July | | | | August | | | |
| Week | | 1 – 8 | 9 – 15 | 16 – 22 | 23 – 31 | 1 – 12 | 13 – 19 | 20 – 26 | 27 – 31 |
| Adult | AM | £197 | £200 | £215 | £215 | £224 | £209 | £199 | £188 |
| | PM | £174 | £177 | £192 | £192 | £201 | £186 | £176 | £165 |
| Child | AM | £110 | £113 | £128 | £128 | £137 | £122 | £112 | £101 |
| | PM | £87 | £90 | £105 | £105 | £114 | £99 | £89 | £78 |

| King Lingus | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | July | | | | August | | | |
| Week | | 1 – 8 | 9 – 15 | 16 – 22 | 23 – 31 | 1 – 12 | 13 – 19 | 20 – 26 | 27 – 31 |
| Adult | AM | £193 | £195 | £197 | £211 | £220 | £213 | £208 | £204 |
| | PM | £176 | £178 | £180 | £191 | £203 | £196 | £191 | £187 |
| Child | AM | £119 | £121 | £123 | £134 | £146 | £139 | £134 | £130 |
| | PM | £102 | £104 | £106 | £117 | £129 | £122 | £117 | £113 |

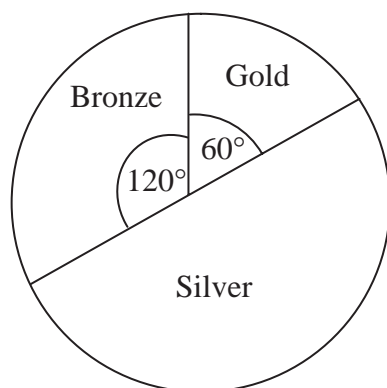| Easy Plane | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | July | | | | August | | | |
| Week | | 1 – 8 | 9 – 15 | 16 – 22 | 23 – 31 | 1 – 12 | 13 – 19 | 20 – 26 | 27 – 31 |
| Adult | AM | £198 | £206 | £213 | £223 | £232 | £214 | £210 | £205 |
| | PM | £181 | £189 | £196 | £206 | £215 | £197 | £193 | £188 |
| Child | AM | £94 | £102 | £109 | £119 | £128 | £110 | £106 | £101 |
| | PM | £77 | £85 | £92 | £102 | £111 | £93 | £89 | £84 |

Harry and Edith have 3 children.
They want to travel on the morning of 27th July.

Work out the cheapest cost.

**(Total for Question 7 = 6 marks)**

**8** The pie chart shows some information about the numbers of medals won by Canada in the 2008 Olympic Games.
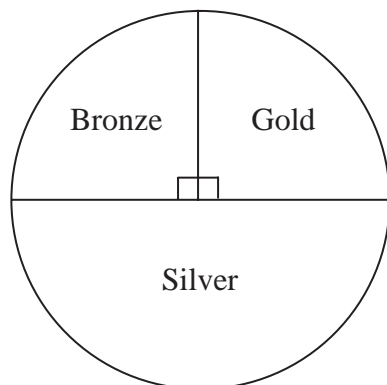


Canada won 3 gold medals.

(a) Work out the **total** number of medals Canada won.

**(2)**

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The pie chart below shows some information about the numbers of medals won by Canada in the 2004 Olympic Games.



Maria says
"The pie charts show that Canada won the same number of silver medals in 2008 as in 2004".

(b) Is Maria correct?    Yes ☐    No ☐

Explain your answer.

**(1)**

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**(Total for Question 8 = 3 marks)**

**\*9** Some students did a test.
Here are their scores.

| Boys' scores | 27 | 20 | 12 | 28 | 35 | 28 | 37 | | |
| Girls' scores | 29 | 31 | 35 | 15 | 18 | 25 | 35 | 27 | 40 |

Compare fully the scores of these students.

**(Total for Question 9 = 6 marks)**

**10** Charles wants to find out how much people spend on sweets.

He will use a questionnaire.

(a) Design a suitable question for Charles to use in his questionnaire.

Charles asks the people in his class to do his questionnaire.

(b) Give a reason why this may not be a suitable sample.

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**(Total for Question 10 = 3 marks)**

**\*11**   Kylie wants to invest £1000 for one year.
   She considers two investments, Investment A and Investment B.

<table>
<tr><td align="center"><b>Investment A</b><br><br>£1000<br><br>Earns £2.39 per month<br><br><b>plus</b><br><br>£4.50 bonus for each complete year<br><br>Interest paid monthly by cheque.</td><td align="center"><b>Investment B</b><br><br>£1000<br><br>Earns 3.29% interest per annum<br><br>Interest paid yearly by cheque.</td></tr>
</table>

Kylie wants to get the greatest return on her investment.

Which of these investments should she choose?

(**Total for Question 11= 5 marks**)

**12** Nadine asked 50 people which of the newspapers the Times, the Guardian and the Telegraph they like best.
Here is information about her results.

19 out of the 25 males said they like the Telegraph best.
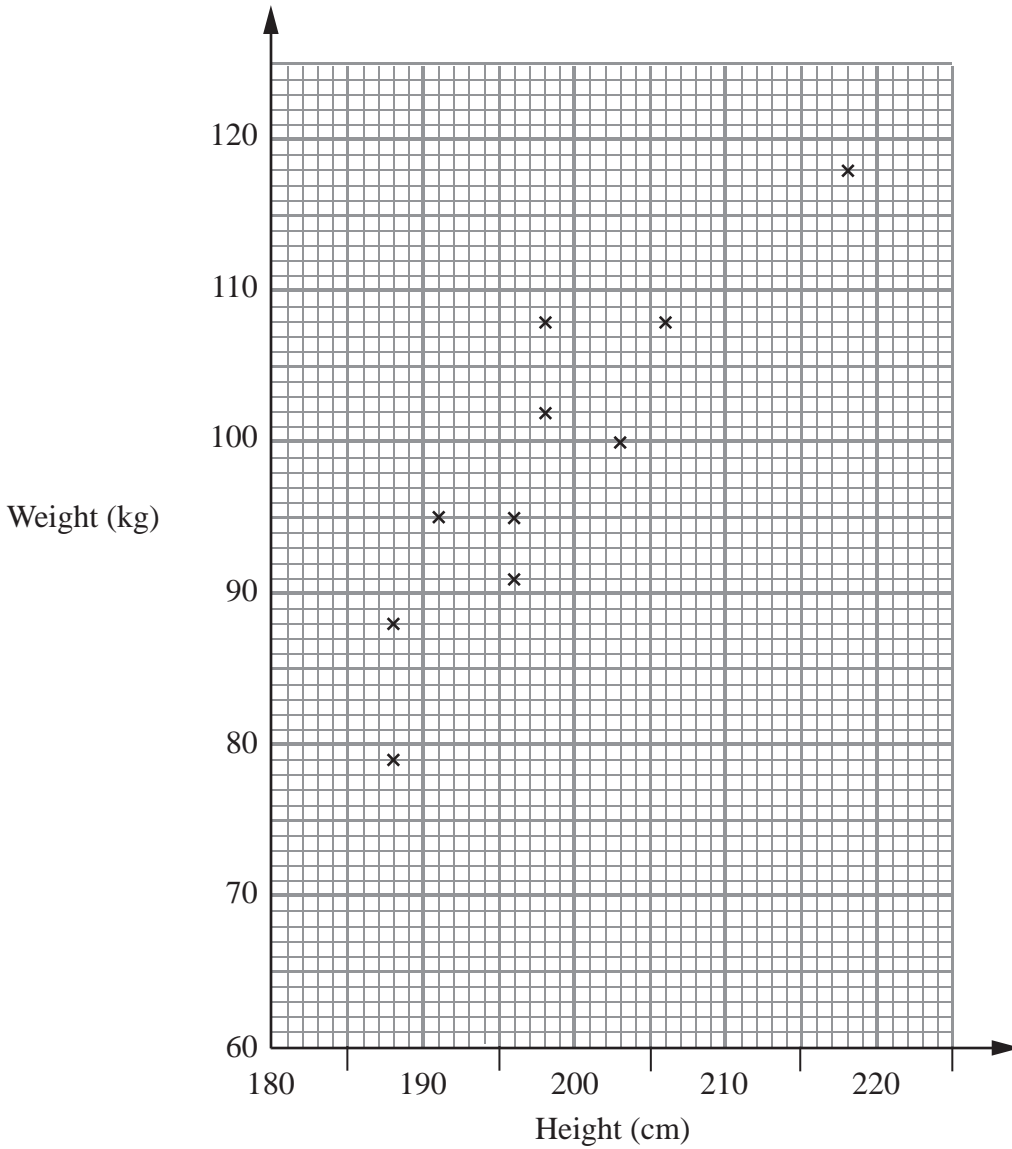5 females said they like the Guardian best.
4 out of the 7 people who said they like the Times best were female.

Work out the number of people who like the Telegraph best.

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**(Total for Question 12 = 4 marks)**

**13** The scatter graph shows some information about a random sample of ten male players at a basketball club.

For each player it shows his height and his weight.



(a) (i)   On the scatter graph, draw a line of best fit.

   (ii)  Work out the gradient of your line of best fit.

   **(3)**

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(b) Estimate the proportion of male players in the club whose weight is greater than 99 kg and whose height is less than 200 cm.

   **(2)**

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**(Total for Question 13 = 5 marks)**

**14** Jenny uses her mother's recipe to make cheese scones.
Her recipe uses a mixture of self-raising flour, butter and cheese in the ratio 6 : 2 : 1 by weight.

In her kitchen, Jenny has:
2 kg of self-raising flour,
500 grams of butter,
200 grams of cheese.

When Jenny makes cheese scones each scone needs about 45 grams of mixture.

Work out the largest number of cheese scones that Jenny can make.

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**(Total for Question 14 = 4 marks)**

**TOTAL FOR PAPER: 60 MARKS)**