FUNCTIONAL SKILLS
0810/01
MATHEMATICS
LEVEL 1

A.M. WEDNESDAY, 8 May 2013
1 1/2 hours

ADDITIONAL MATERIALS
A calculator, ruler, protractor and a pair of compasses will be required for this paper.

INSTRUCTIONS TO CANDIDATES
Use black ink or black ball-point pen.
Write your name, centre number and candidate number in the spaces at the top of this page.
Answer all the questions in the spaces provided.

INFORMATION FOR CANDIDATES
You should give details of your method of solution when appropriate.
Unless stated, diagrams are not drawn to scale.
Scale drawing solutions will not be acceptable where you are asked to calculate.
The number of marks is given in brackets at the end of each question or part-question.
1. The table shows the number of cars that used a town's car park during a period of one week.

<table>
<thead>
<tr>
<th>Day</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cars</td>
<td>84</td>
<td>23</td>
<td>92</td>
<td>143</td>
<td>96</td>
<td>162</td>
<td>80</td>
</tr>
</tbody>
</table>

Calculate the total number of cars that used this car park during the week.

[1]

One of the days between Monday and Friday is the town's market day. The shops are only open in the morning on one of the days between Monday and Friday.

Using the information given in the table, which days do you think they are?

<table>
<thead>
<tr>
<th>Market day</th>
<th>Morning opening only</th>
</tr>
</thead>
</table>

[2]

The car park has space for 150 cars. Explain how it was possible for 162 cars to have used the car park on Saturday.

[1]
The charge for using this car park is displayed on the notice shown below.

**CAR PARK**

Monday to Friday £2 per day  
Free parking on Saturday and Sunday  
(No time limit)

Calculate how much money was spent on parking at this car park for the week shown in the table.

[3]

The town council is considering a new system for the way it charges for parking.

The new system is to

- reduce the charge to £1.50
- charge this amount on all seven days of the week
- allow free parking for those who stay less than one hour.

That week, a quarter \( \frac{1}{4} \) of the cars stayed for less than one hour.

Calculate the amount of money that would have been collected by using this new system. Would the new system have collected more or less money for the council? State the difference in the amount of money that would have been collected.

[6]
2. A paint company produces a special shade of paint. The shade is made by mixing red paint, blue paint and white paint in the ratio of $1:3:5$ in that order.

For one production of this shade of paint, the company used 2000 litres of red paint. Calculate how many litres of the shaded paint were produced.

Stuart says,

“The ratio goes up in twos, so there is twice as much blue paint used as red paint.”

Check if Stuart was correct in what he said. Give a reason for your answer.

A customer needs to paint 25 identical wall panels. She knows that one tin of paint is enough to paint six of these wall panels. Each tin costs £8.95. How much will it cost her to buy just enough tins to complete the job?
She knows from experience that the time taken to paint this type of wall panel is given by the formula.

\[
\text{Time taken} = \text{number of panels} \times 10 \text{ minutes } + \frac{1}{2} \text{ hour}
\]

Check if she is able to complete painting the 25 panels in less than five hours. Show all your calculations.
3. Mr and Mrs Khan want to buy a plot of land in order to build a new house. They have two different documents which show two plots of land that are for sale. These are shown as the shaded areas on the two documents below.

Find an estimate for the area of Plot A, and calculate the accurate area of Plot B. You must give the correct units for your answers.

Plot A

Plot B
Both plots of land cost the same.
A simple outline plan of the house Mr and Mrs Khan want to build is shown below.

Diagram not drawn to scale

Which plot of land, Plot A or Plot B, do you think they should buy?
You must give a reason for your choice.
4. Susan recorded the temperature outside her house five times on one day. She recorded the first temperature at 7:00 am and repeated the process every three hours.

The temperatures she recorded are shown in the table below.

Complete the table to show the times at which she recorded the other three temperatures.

<table>
<thead>
<tr>
<th>Time</th>
<th>7:00 am</th>
<th></th>
<th></th>
<th>7:00 pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>14.2°C</td>
<td>18.4°C</td>
<td>22.8°C</td>
<td>19.0°C</td>
</tr>
</tbody>
</table>

What was the range of the temperatures that Susan recorded?

What was the mean of the temperatures that Susan recorded?

Explain why the answers you have found may not be the correct mean and range of the temperature for the whole time between 7:00 am and 7:00 pm.
5. Kate and Amir are planning to hold a party next April.

The date for the party does not matter to most of the people they are going to invite. However, six of their special friends would not be able to be at the party on certain dates.

They are:
- Jim, who is away every Saturday and Sunday,
- Maya, who is away for the first three days and last four days of each month,
- Flavia, who cannot be there on any Wednesday,
- Brendan, who is on holiday from 16 April until 23 April,
- Erin, who is working away on the first two Thursdays and Fridays, and
- Robbie, who won’t be able to make the first Monday of the month.

Write down all the possible dates that Kate and Amir could choose, so that all of their six special friends would be able to be at the party.

<table>
<thead>
<tr>
<th>Sun</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
<th>Fri</th>
<th>Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
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<tr>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Having decided on a date, Kate and Amir sent out invitations. In order to help them prepare for the party, they made the following note about the friends they have invited.

<table>
<thead>
<tr>
<th></th>
<th>Kate’s friends</th>
<th>Amir’s friends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of females</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Number of males</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Looking at the numbers, Amir said,

“Over 50% of the people invited are your friends.”

Kate replied, saying,

“Over 50% of your invited friends are male.”

Explain, clearly, using the numbers shown, whether they are both correct, both incorrect or only one of them is correct in what they say.
Kate and Amir and their six special friends often eat together at a local restaurant.

The restaurant set out a rectangular table 200 cm long by 100 cm wide for them.

Using a scale, where 1 centimetre represents 20 centimetres, make an accurate scale drawing of the table.

Using a cross (X) to represent the position of the centre of each chair, show accurate and possible positions of how the eight people can be suitably seated at the table.

- There must be at least 60 cm between the centres of each chair placed around this table.
- The centre of each chair should not be within 30 cm of a corner of the table.

Show your accurate scale drawing below
6. David, and his seven year old daughter, have arranged to meet Tara and her twin boys who are nine years old. They are going to spend the day at the ‘Benlake Wild Life Park’. They agree to meet at the entrance to the park at 10:00 am.

David lives in Amluck and Tara lives in Talroon.

Both David and Tara decide to travel from their homes to Benlake by train. It takes 15 minutes to walk from the station at Benlake to the Wild Life Park.

Parts of two train timetables are shown below.

<table>
<thead>
<tr>
<th>Amluck to Benlake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depart Amluck</td>
</tr>
<tr>
<td>Arrive Benlake</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Talroon to Benlake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depart Talroon</td>
</tr>
<tr>
<td>Arrive Benlake</td>
</tr>
</tbody>
</table>

What are the latest departure times of the trains they must use, from their local stations, if they are to meet at 10:00 am as planned?

Latest time from Amluck ..........................................................

Latest time from Talroon ..........................................................

[2]

Which of the two places, Amluck or Talroon, do the timetables suggest is nearer to Benlake? You must give a reason for your answer and also write down what assumption you are making.

Nearer to Benlake ..............................................................

My reason

I’m assuming
All the trains from Talroon to Benlake travel at an average speed of 60 miles per hour. What distance do these trains travel between Talroon and Benlake?

The cost of entry tickets to the park is shown outside the main gate.

**Benlake wild life park**

**Adults** £9  
**Children** £6  

**Family tickets** £25  
*(2 adults + 2 children. Each extra child £5)*

Calculate how much David paid for his two tickets and how much Tara paid for her three tickets. Explain what they could have done differently in order to save some money. Showing all your calculations find out how much money could have been saved.