SAMPLE PAPER 1
Level 2 Functional Skills Mathematics

Duration: 25 minutes
Total marks: 15

SECTION 1 – CALCULATOR NOT PERMITTED
VERSION 1.0

Candidate name (first, last)
First

Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

*I declare that I had no prior knowledge of the questions in this assessment and that I will not share information about the questions.

You should have the following for this assessment:
- a pen with black or blue ink
- a pencil (for diagrams, graphs and charts only)
- an eraser
- a 30cm ruler.

You must NOT use a protractor.
You must NOT use a calculator for Section 1.

General instructions
- Read through each question carefully.
- Write all your answers in this booklet.
- Check your calculations and check that your answers make sense.
SECTION 1 – CALCULATOR NOT PERMITTED

There are 15 marks available in this section.

You should check all your work as you go along.

You must not use a calculator in this section.
Q1

What is \( \frac{2}{3} \) as a percentage? Give your answer rounded to two decimal places.

\[ \underline{\hspace{5cm}} \% \]

(1 mark)

Q2

What is 14% of 200?

\[ \underline{\hspace{5cm}} \]

(1 mark)

Q3

\[ 2 \frac{1}{2} + 3 \frac{3}{4} = \]

(tick one box)

A  \( 5 \frac{1}{4} \)

B  \( 5 \frac{4}{6} \)

C  \( 6 \frac{1}{4} \)

D  \( 6 \frac{4}{6} \)

(1 mark)
Q4
What is 75 as a fraction of 125? Give your answer in its simplest form.

Q5
\[
\frac{1}{2} - \frac{2}{7} = 
\]
Give your answer in its simplest form.

Q6
\[(8 + 2 \times 6)^2 = \]

Q7
What is the value of \(3ab\) when \(a = 5\) and \(b = 6\)?

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Q8
Calculate the size of angle A.

\[ \angle A = 80^\circ \]

(1 mark)

Q9

\[ 900 + 1500 \div 300 = \]

(1 mark)

Q10

\[ 147.206 - 95.438 = \]

(1 mark)

Q11
A car can travel 480 miles on a full tank of petrol. The tank holds 60 litres. The fuel gauge shows there are 15 litres left in the tank.

How many more miles can the car travel before it runs out of petrol?

\[ \boxed{300} \]

(1 mark)
Q12  The probability that a salesperson will get an order from a visit to a customer is \(\frac{1}{4}\).
She has 2 visits tomorrow.

What is the probability that she will get orders from both visits tomorrow?

Give your answer as a fraction in its simplest form.

\[
\frac{\phantom{0}}{\phantom{0}}
\]

(1 mark)

Q13  This table shows the change in the number of employees in different departments of a company compared to last year.

<table>
<thead>
<tr>
<th>Department</th>
<th>Change compared to last year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin</td>
<td>-1</td>
</tr>
<tr>
<td>Design</td>
<td>0</td>
</tr>
<tr>
<td>Production</td>
<td>+4</td>
</tr>
<tr>
<td>Packing</td>
<td>+2</td>
</tr>
<tr>
<td>Warehouse</td>
<td>-1</td>
</tr>
<tr>
<td>Marketing</td>
<td>-3</td>
</tr>
</tbody>
</table>

What is the total change in the number of employees compared to last year?

(tick one box)

A 1 fewer
B 1 more
C 11 fewer
D 11 more

(1 mark)
Q14 A manager wants to give a pay rise to everyone who is paid less than the average salary. This table shows the annual salaries of the employees in the company.

<table>
<thead>
<tr>
<th>Employee</th>
<th>Salary (in £ thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AJ</td>
<td>16</td>
</tr>
<tr>
<td>TM</td>
<td>23</td>
</tr>
<tr>
<td>WF</td>
<td>23</td>
</tr>
<tr>
<td>SW</td>
<td>22</td>
</tr>
<tr>
<td>MT</td>
<td>15.5</td>
</tr>
<tr>
<td>RD</td>
<td>18.5</td>
</tr>
<tr>
<td>JR</td>
<td>20</td>
</tr>
<tr>
<td>LS</td>
<td>23</td>
</tr>
<tr>
<td>PB</td>
<td>36</td>
</tr>
</tbody>
</table>

Tick all of the employees who are paid less than the median salary.

(1 mark)

Q15 The distance between two villages on a map measures 6 centimetres. The map has a scale 1:25000

What is the actual distance between the two villages in kilometres?

___________________ km

(1 mark)

End of Section 1.
When you have finished you MUST hand this booklet in to the invigilator before you pick up your calculator to start Section 2.
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SAMPLE PAPER 1
Level 2 Functional Skills Mathematics

Duration: 1 hour 20 minutes
Total marks: 45

SECTION 2 - CALCULATOR PERMITTED
VERSION 1.0

Candidate name (first, last)
First
Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

• If you have used any additional answer sheets write the number of additional sheets in this box.

• Please ensure that you staple additional answer sheets to the back of this booklet, clearly labelling them with your full name, enrolment number, centre number and date in BLOCK CAPITALS.

• You must use a black or blue pen. You may use a pencil for charts and diagrams.

*I declare that I had no prior knowledge of the questions in this assessment and that I will not share information about the questions.

You should have the following for this assessment
• a pen with black or blue ink.
• a pencil (for diagrams, graphs and charts only)
• an eraser
• a 30cm ruler.

You may use a calculator for Section 2.

You must NOT use a protractor.

General instructions
• Read through each question carefully.
• Show your working out (where required).
• Write all your working out and answers in this booklet.
• Check your calculations and check that your answers make sense.

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SECTION 2 - CALCULATOR PERMITTED

There are 45 marks in this section.

You should check all your work as you go along.

You may use a calculator.
Which point is at (3,4)?

(tick one box)

A. Point A
B. Point B
C. Point C
D. Point D

(1 mark)
Q2

1 gallon = 4.546 litres

10 litres in gallons is approximately

(tick one box)

A. 0.45 gallons
B. 2.2 gallons
C. 45.5 gallons
D. 22 gallons

(1 mark)

Q3

What is the mode of these numbers?

155 125 145 90 125 150 155
90 100 125 178 95 125 180

(1 mark)

Q4

Which one of the following lists is in increasing order?

(tick one box)

A. 0.1013 0.0827 0.0095
B. 0.1013 0.0095 0.0827
C. 0.0095 0.1013 0.0827
D. 0.0095 0.0827 0.1013

(1 mark)
Q5
The surface area of a sphere is \( 4\pi r^2 \)
A sphere has a radius \( r \) that measures 3cm

\[
\begin{array}{c}
\text{Use } \pi = 3.142 \\
\text{or } \pi = \frac{22}{7}
\end{array}
\]

Work out the surface area of the sphere to the nearest \( \text{cm}^2 \).

A. 15\( \text{cm}^2 \)  
B. 22\( \text{cm}^2 \)  
C. 113\( \text{cm}^2 \)  
D. 1421\( \text{cm}^2 \)  

(1 mark)

Q6 A man is going to New York for work. He wants to book a hotel online.

A friend says
‘Remember the booking website will show the price in dollars. It will actually cost more pounds than the price shown, because of the exchange rate.’

The man checks the exchange rate because he thinks his friend is wrong. He thinks that the number of pounds will be less than the number of dollars shown.

\[
\begin{array}{c}
\text{Exchange rate } £1 = $1.24
\end{array}
\]

Who is right, the man or his friend?
Explain your answer.

(1 mark)
Q7 A newspaper report says that a company made £700,000 profit last year. It says this was 12% more than the year before.

Work out how much profit the company made the year before.

Show all your working

Profit £__________________

(3 marks)
Income tax
Everyone can earn a certain amount of money without paying tax. This is called a Personal Allowance. They must pay tax on any earnings over this allowance.

| Income tax Personal Allowance, 2018/2019 | £11,850 |

This formula gives the amount of income tax a person pays in a year

\[ T = 0.2 \times (y - p) \]

where

- \( T \) = income tax for the year
- \( y \) = money earned per year
- \( p \) = Personal Allowance

A caterer earns £1,375 per month.

How much income tax will she pay for the year?

Show all your working.

£

(4 marks)
Q9 A worker has to set a machine to cut this shape from a piece of metal.

What is the area of the shape?

Show all your working.

\[
\text{Area} = \frac{1}{2} \times (\text{Base} \times \text{Height}) + \text{Area of rectangle} - \text{Area of triangle}
\]

\[
\text{Area} = \frac{1}{2} \times (8.0 \, \text{cm} \times 3.0 \, \text{cm}) + (2.0 \, \text{cm} \times 2.5 \, \text{cm}) - \frac{1}{2} \times (2.0 \, \text{cm} \times 3.0 \, \text{cm})
\]

\[
\text{Area} = 12.0 \, \text{cm}^2 + 5.0 \, \text{cm}^2 - 3.0 \, \text{cm}^2
\]

\[
\text{Area} = 14.0 \, \text{cm}^2
\]

(4 marks)
Q10 A photographer increases the price he charges to print photographs. He wants to know if this affects his sales.

Last week, before the price increase, the average number of photos ordered was 12.

This week customers ordered:

<table>
<thead>
<tr>
<th>Photos ordered</th>
<th>Number of customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 10</td>
<td>26</td>
</tr>
<tr>
<td>11 - 20</td>
<td>14</td>
</tr>
<tr>
<td>21 - 30</td>
<td>6</td>
</tr>
<tr>
<td>31 - 40</td>
<td>4</td>
</tr>
<tr>
<td>41 - 50</td>
<td>0</td>
</tr>
<tr>
<td>51 - 60</td>
<td>0</td>
</tr>
</tbody>
</table>

Does the price increase seem to have had an effect on the number of prints ordered per customer? Explain your answer. Include calculations to support your decision.

Decision (yes/no) ________________

Explanation and supporting calculations

(4 marks)
Q11 This table shows how much a garage pays its staff.

<table>
<thead>
<tr>
<th>Pay rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working day</td>
</tr>
<tr>
<td>Monday to Friday</td>
</tr>
<tr>
<td>Saturday or Sunday</td>
</tr>
</tbody>
</table>

Last week, a mechanic worked 7½ hours each day from Monday to Saturday. She did not work on Sunday.

Her normal rate of pay is £10.80 an hour.

Work out her total pay for last week.

Show all your working

£ ________________

Use approximation to check your answer.

Do your check here

(4 marks)
Q12 A woman applies for a new job that pays £8.50 a week more (after tax).

She will work 5 days a week and drive to work, as she does in her job now. The new job is 6 miles further from her house.

| Her car travels 8.5 miles per litre of petrol |
| Petrol costs £1.26 per litre |

Will the woman be better off with the new job after she takes the petrol into consideration?

Explain your answer. Include calculations to support your decision.

Decision (yes/no) __________

Explanation and supporting calculations

(4 marks)
Your boss needs you to make some travel arrangements for him.

He will travel to Hull **4 days** every week for the next 6 months (26 weeks).

He needs to arrive at Hull at 8:30am and catch the train home at 5pm each day.

### TRAIN TICKET PRICE INFORMATION

**TRAINS TO HULL**

**TICKET TYPE:**
- DAY RETURN £8.00
- OFF-PEAK* DAY RETURN £6.20

**SEASON TICKETS VALID FOR:**
- ONE WEEK £29.60
- ONE MONTH £113.70
- ONE YEAR £1,184.00

*(Price for season ticket covers all travel while the ticket is valid)*

*OFF-PEAK* tickets are **not** valid for travel between 0700 and 0900 or between 1500 and 1900

---

Which ticket type do you recommend?

**Recommendation**

---

Explain your reasons. Include figures or calculations to support your decision.

**Explanation and supporting calculations**

(5 marks)
Q14 A company has made some changes to the way its employees work.

The manager wants to know if these changes have made any difference to the number of days employees take off work because of illness.

She can’t just compare the total days as there are fewer people working in each department after the changes.

She gives you this information about the employees in one department.

| Number of days each employee took off sick in the year BEFORE the changes | Number of days each employee took off sick in the year AFTER the changes |
|---|---|---|---|---|---|---|---|
| 14 | 12 | 11 | 8 | 12 | 0 | 2 |
| 15 | 12 | 0 | 15 | 6 | 3 | 7 |
| 11 | 3 | 10 | 7 | 14 | 10 | 10 |
| 0 | 5 | 8 | 10 | 3 | 8 | 9 |
| 15 | 16 | 14 | 3 | 8 | 4 | 4 |

Did the changes make any difference to the average number of days that employees took off sick?

Explain your findings to the manager. Show calculations to support your explanation.

Decision (yes/no) __________

Explanation and supporting calculations

(5 marks)
Q15 A café owner wants to know how many cold drinks she is likely to sell next week.

She makes a record of sales of drinks over the last two weeks:

<table>
<thead>
<tr>
<th>Day</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
<th>M</th>
<th>T</th>
<th>W</th>
<th>Th</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (°C) at midday</td>
<td>17</td>
<td>18</td>
<td>17</td>
<td>19</td>
<td>20</td>
<td>20</td>
<td>19</td>
<td>19</td>
<td>22</td>
<td>23</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Number of cold drinks sold</td>
<td>24</td>
<td>26</td>
<td>25</td>
<td>30</td>
<td>32</td>
<td>28</td>
<td>27</td>
<td>29</td>
<td>35</td>
<td>40</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td>Number of hot drinks sold</td>
<td>34</td>
<td>36</td>
<td>32</td>
<td>34</td>
<td>27</td>
<td>29</td>
<td>37</td>
<td>39</td>
<td>25</td>
<td>25</td>
<td>28</td>
<td>28</td>
</tr>
</tbody>
</table>

She wants to use this information to see if she can predict the number of cold drinks she is likely to sell based on the temperature forecast for a particular day.

Use the graph paper to show clearly the data she has collected in a way that will help her to do this.

Space for working
The weather forecast for next week says it will be 21°C on Monday.

What can you tell the café owner about how many cold drinks the café is likely to sell on Monday? **Show clearly on your graph paper how you found your answer.**

Answer

(6 marks)

End of Section 2
Spare graph paper for Question 15
Notes for marking open response Problem Solving questions in Section 2:

The mark scheme has been carefully constructed to avoid penalising candidates repeatedly for similar errors.

1) The principle of follow through applies throughout unless otherwise stated. This allows the candidates to gain credit for subsequent correct calculation based on a previous incorrect answer. There is no follow-through between questions, but may be in multi-stage calculations within a question.

2) Units or numbers shown in brackets on the mark scheme are not required for the awarding of mark/s on the candidate's paper. However, if a candidate states units they must be correct:
   eg 24(cm) means accept 24cm or 24 but not 24m
   eg (£)72.5(0) means accept £72.50 or £72.5 or 72.50 or 72.5

3) Correct money format is expected in final answers unless otherwise indicated eg by brackets ie pounds must have two decimal places or no decimal places unless otherwise stated.
   eg (£)5.00 or (£)5 not (£)5.0
   eg (£)72.50 not (£)72.5
   eg (£)37.43 not (£)37.432

4) URT means unrounded, rounded or truncated; the underlining defines the acceptable limit of approximation:
   eg 860. 8652 URT (U is the unrounded version)
   the following are acceptable: 860 (T) or 861 (R) 860.8 (T) or 860.9 (R) or 860.86 (T) or 860.87 (R) or 860.865 (R) or 860.8652 (U) but not eg 900.

The 3rd and 4th columns of the mark schemes show the marks to be given for specific responses. Marks in bold are for fully correct answers. Where full marks are not achieved, examiners will award the marks that correspond to the responses given in the grey rows below. Any unforeseen but creditable responses are noted during the early stage of marking and are considered and, where appropriate, added to the mark scheme by the Chief Examiner when the mark scheme is finalised.

Where the marks are awarded for a complete correct method with one calculation error, examiners give the mark for a substantially correct solution with a single accuracy error or single (or consistent) early rounding, but not with a method error.
<table>
<thead>
<tr>
<th>Question</th>
<th>Total marks</th>
<th>Marks</th>
<th>Marks awarded for</th>
<th>Item type</th>
<th>Subject content statement reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>66.67</td>
<td>UPK Short answer fixed response</td>
<td>SCS4 [1]</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>28 or 28.0 or 28.00</td>
<td>UPK Short answer fixed response</td>
<td>SCS5 [1]</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>C</td>
<td>UPK MC fixed response</td>
<td>SCS7 [1]</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
<td>$\frac{3}{5}$ ie 3 in top box AND 5 in bottom box</td>
<td>UPK Short answer fixed response</td>
<td>SCS8 [1]</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1</td>
<td>$\frac{3}{14}$ ie 3 in top box AND 14 in bottom box</td>
<td>UPK Short answer fixed response</td>
<td>SCS7 [1]</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>1</td>
<td>400 or 400.0 or 400.00</td>
<td>UPK Short answer fixed response</td>
<td>SCS12 [1]</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1</td>
<td>90 or 90.0 or 90.00</td>
<td>UPK Short answer fixed response</td>
<td>SCS3 [1]</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1</td>
<td>70 or 70.0 or 70.00</td>
<td>UPK Short answer fixed response</td>
<td>SCS22 [1]</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>1</td>
<td>905 or 905.0 or 905.00</td>
<td>UPK Short answer fixed response</td>
<td>SCS12 [1]</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>1</td>
<td>51.768</td>
<td>UPK Short answer fixed response</td>
<td>SCS10 [1]</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1</td>
<td>120 (miles)</td>
<td>Problem solving short answer fixed response</td>
<td>SCS11 [1]</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>1</td>
<td>$\frac{1}{16}$ ie 1 in top box AND 16 in bottom box</td>
<td>Problem solving short answer fixed response</td>
<td>SCS26 [1]</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>1</td>
<td>B</td>
<td>Problem solving MC fixed response</td>
<td>SCS1 [1]</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>1</td>
<td>AJ and MT and RD and JR all ticked</td>
<td>Problem solving short answer fixed response</td>
<td>SCS23 [1]</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1</td>
<td>1.5 (km)</td>
<td>Problem solving short answer fixed response</td>
<td>SCS18 [1]</td>
</tr>
</tbody>
</table>

Total for Section 1 15 marks
<table>
<thead>
<tr>
<th>Question</th>
<th>Total marks</th>
<th>Marks</th>
<th>Marks awarded for</th>
<th>Item type</th>
<th>Subject content statement reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>B</td>
<td>UPK MC fixed response</td>
<td>SCS19 [1]</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>B</td>
<td>UPK MC fixed response</td>
<td>SCS14 [1]</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>1</td>
<td>125 or 125.0 or 125.00</td>
<td>UPK Short answer fixed response</td>
<td>SCS23 [1]</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>1</td>
<td>D</td>
<td>UPK MC fixed response</td>
<td>SCS9 [1]</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>1</td>
<td>C</td>
<td>UPK MC fixed response</td>
<td>SCS17 [1]</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>1</td>
<td>man is right with valid comment referring to relationship between dollar and pound eg 'Because the pound is worth more than the dollar.'</td>
<td>Problem solving Short answer open response</td>
<td>CHECK</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>3</td>
<td>(£)625 000</td>
<td>Problem solving Short answer open response</td>
<td>SCS6 [3]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 +1.12 or +112 x 100 seen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 1.12 seen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>4</td>
<td>(£)930 or 930.00</td>
<td>Problem solving Short answer open response</td>
<td>SCS3 [1]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>complete correct method with one calculation error or (£)4650 for taxable amount or (£)3000 AND (£)2370 from applying 0.2 to y and p</td>
<td></td>
<td>SCS10 [1]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>correct substitution of given information into formula (y &amp; p)</td>
<td></td>
<td>SCS13 [2]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(£)16500 for earnings for a year or order of operations correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>4</td>
<td>26 (cm²)</td>
<td>Problem solving Short answer open response</td>
<td>SCS16 [4]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3 6 (cm²) for area of triangle or complete correct method with one calculation error</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 correct method to find area of a triangle seen or 4(cm) seen for base of triangle and 20(cm²) seen for area of rectangle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 4(cm) seen for base of triangle or 20(cm²) seen for area of rectangle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>3</td>
<td>13.1 or 13 (photos) OR complete correct method with one calculation error</td>
<td>Problem solving Short answer open response</td>
<td>SCS24 [4]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 655 for Σfx</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 at least three of 5.5, 15.5, 25.5, 35.5, 45.5, 55.5 for midpoints</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 A valid explanation consistent with their decision (yes or no) and results eg 'No because the average number went up after he put the prices up not down'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Estimating median and mode of grouped data are above the level, but in the event of a candidate working out the estimated median full marks are available. 7 or 8 photos (with some working) = 4 marks 7.5 photos = 3 marks a complete correct method with one error = 2 marks
### Problem 11

**median class 0-9 = 1 mark**

**In the event of a candidate giving the modal class as 0-9 = 1 mark**

<table>
<thead>
<tr>
<th>Score</th>
<th>Mark</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>(€)13.50 for Saturday rate or 37.5 hours for Mon-Friday seen</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>complete correct method with one calculation error or (€)405 for Monday to Friday or (€)101.25 For Saturday</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>a suitable check of their calculations using reasonable approximated values eg (5x7x10 =350) + (1.25x10x8 =100) =450</td>
</tr>
</tbody>
</table>

**Costs**

- £506.25

**Problem solving**

- Short answer open response

**SCS**

- SCS2 [1]
- SCS15 [3]

---

### Problem 12

**€8.894117647 URT for cost of travelling extra distance per week**

<table>
<thead>
<tr>
<th>Score</th>
<th>Mark</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>60 for miles per week (Note this may be split if they do it per journey and then double at the end or if they do one day and then x5 at the end)</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>7.058823529 URT for litres per week or 14.82352941 URT for pence per mile or 4.4705882 URT for travelling extra distance based on journey one way only or a complete correct method with one error or early rounding</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>comparison of their calculated increased travel cost with increased pay (£8.50) AND decision with explanation just comparing the two values or reference to things like increased servicing costs/wear and tear etc</td>
</tr>
</tbody>
</table>

**Costs**

- £8.894117647

**Problem solving**

- Short answer open response

**SCS**

- SCS10 [1]
- SCS11 [1]
- SCS13 [1]
- SCS15 [1]

---

### Problem 13

**monthly tickets recommended**

**AND explanation referring to cost AND time of travel/off-peak restrictions**

**AND (€)682.20 for total for monthly tickets AND (€)832 for day returns AND (€)769.60 for weekly tickets**

<table>
<thead>
<tr>
<th>Score</th>
<th>Mark</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>monthly tickets recommended or ticket consistent with their results and explanation referring to cost or time of travel/off-peak restrictions and (€)682.20 for total for monthly tickets and (€)832 for day returns and (€)769.60 for weekly ticket or complete correct method with one calculation or rounding error and corresponding decision and explanation</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>monthly tickets recommended or ticket consistent with their results and explanation referring to cost or time of travel/off-peak restrictions and two of total costs from (€)682.20 for monthly tickets; (€)832 for day returns; (€)769.60 for weekly tickets or all three total costs correct, but incorrect/no recommendation</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>monthly tickets recommended or ticket consistent with their results and explanation referring to cost or time of travel/off-peak restrictions and two of total costs from (€)682.20 for monthly tickets; (€)832 for day returns; (€)769.60 for weekly tickets or all three total costs correct, but incorrect/no recommendation</td>
</tr>
</tbody>
</table>

**Costs**

- €8.894117647

**Problem solving**

- Short answer open response

**SCS**

- SCS13 [5]
<table>
<thead>
<tr>
<th>2</th>
<th>monthly tickets recommended or ticket consistent with their results and explanation referring to cost or time of travel/off-peak restrictions and one of total costs from (£)682.20 for monthly tickets; (£)832 for day returns; (£)769.60 for weekly tickets or two total costs correct, but incorrect/no recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>any one total cost correct from day return (£)832 off-peak day return (£)644.80 weekly (£)769.60 monthly (£)682.20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14</th>
<th>5</th>
<th>5</th>
<th>Yes or equivalent AND explanation referring to average days before AND after changes AND supporting figures or calculations eg 9 days and 7 days (for mean) or 10 days and 8 days (for median)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>one mean or one median correct and consistent decision and explanation or two means or two medians correct with incorrect/no explanation or decision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>one mean or one median correct</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>correct method for one mean or median</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>180 and 105 for total days off in each year or correct ordering of both sets of data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>15</th>
<th>6</th>
<th>1</th>
<th>suitable axes and scale to plot the data for temperature and cold drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>suitable title and labels eg temperature °C and Number of cold drinks sold. Accept either orientation. Note: consider labelling as a whole, eg title may be used to clarify vertical axis label</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>12 plots correct ±1 small square (onscreen) / ±½ small square (paper)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6 plots correct ±1 small square (onscreen) / ±½ small square (paper)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>value for Monday clearly marked on their graph eg by line of best fit (accept any straight line through the points with roughly equal number of plots either side)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>correct interpolated value from their graph eg 33 drinks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total for Section 2 45 marks
Example graph for Section 2 Question 15

Temperature at midday and number of drinks sold

Drinks sold

Temperature °C

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