Exemplar Student answers with examiner comments

About this booklet

This booklet has been produced to support mathematics teachers delivering the new Functional Skills Mathematics specification (first assessment summer 2019).

The booklet looks at questions from the Retired Set 6 which is available on the web as a practice paper. It shows real student responses to these questions, and how the examining team follow the mark schemes to demonstrate how the students would be awarded marks on these questions.

How to use this booklet

Our examining team have selected a student on the pass mark. Following each question, you will find the mark scheme for that question and then the student response with accompanying examiner comments on how the mark scheme has been applied and the marks awarded, and on common errors for this sort of question.
SECTION A
Answer ALL questions. Write your answers in the spaces provided.

1. Kate uses a machine to make toys.
   She makes
   • 800 toys in one hour
   • toys for 6 hours each day.
   Kate checks 5% of the toys she makes in a day for any faults.

   How many toys does Kate check in a day?

   \[ 8 \times 6 = 4800 \]
Examiner comments

1. **1 mark.**

This learner works out the number of toys made in a 6-hour day. **1 mark**

No attempt is made to work with the 5% and so no more marks can be awarded.
2
(a) Write 0.3 as a fraction.

\( \frac{3}{10} \)

(b) Work out 1.6 \( \times \) 1000

1600

(c) Write 19.075 correct to 1 decimal place.

19

(Total for Question 2 is 3 marks)
## Examiner comments

2a) The correct answer is seen. **1 mark**

2b) The correct answer is seen. **1 mark**

2c) The number is not rounded correctly to 1 decimal place. This has been rounded to the nearest whole number. **0 marks**
(a) Work out \( \frac{17 - 3}{2} + 4^2 - 1 \) 

\[ \begin{align*} 14 - 3 &= 11 \\
11 + 16 &= 30 \\
30 - 2 &= 28 \end{align*} \] 

(b) Use a reverse calculation to show a check of your answer.
Examiner comments

3a) **1 mark**

This is an example of BODMAS/BIDMAS

The learner begins correctly either $17 - 3 = 14$ or $4$ squared is $16$ is enough for the first mark.

The second method mark is for a complete process and this learner does not carry out the process in the correct order.

The $14$ must be divided by $2$ before the $26$ can be added on.

3b) **0 mark**

This is a checking mark.

$14 + 3 = 17$ is one example that would score the mark.

Note a reverse calculation is required.

The answer must be given and must be accurate. e.g. $14 + 3 = 16$ would NOT score the mark, neither would $14 + 3$
Rupert is a gardener. He wants to put grass in the space shown in the diagram.

Work out the area of the space for the grass.

\[ A = L \times W \]
\[ A = 9 \times 5 = 45 \text{ m}^2 \]
\[ A = 9 \times 3 = 27 \text{ m}^2 \]
\[ 3 \times 2 = 6 \]
\[ 45 + 6 = 51 \]

\[ 51 \text{ m}^2 \]
Examiner comments

4) 4 marks

A compound area is required.

This learner shows the formula for the area of a rectangle, this is not required but it is helpful.

9 x 5 is enough for the first mark, one relevant area found. (Mark B on the scheme).

The first mark is implied by the correct use of 2, a missing length is found and used without the calculation being shown.

The full process is seen at the point of 45 + 6.

Accuracy is awarded for 51.
SECTION B
Answer ALL questions. Write your answers in the spaces provided.

1. Alan takes part in a health study. He records the time he spends looking at different screens on Monday.

<table>
<thead>
<tr>
<th>Screen</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>computer</td>
<td>5.5 hours</td>
</tr>
<tr>
<td>mobile phone</td>
<td>40 minutes</td>
</tr>
<tr>
<td>TV</td>
<td>3 $\frac{3}{4}$ hours</td>
</tr>
</tbody>
</table>

Alan thinks he spent more than 10 hours in total looking at different screens on Monday.

Is Alan correct? Show why you think this.

Computer = 5.5 hrs
Mobile phone = 40 minutes
TV = 3 $\frac{3}{4}$ hrs.

\[ 5.5 + 4 = 9.5 \] 

No hrs

(Total for Question 1 is 3 marks)
Examiner comments

Q1) 0 marks.

This question tests addition of time.

There is a need to convert three quarters of an hour into minutes or 0.5 of an hour to minutes.

so 45 minutes or 30 minutes is enough for one mark.

Being able to convert a quarter of an hour, half an hour and three quarters of an hour into minutes is an essential skill and will allow learners to gain useful marks.

Here the 4 is not explained at all.
2. Sarah sees this poster about results of a survey about favourite meals in the school canteen.

Favourite meals of 180 students

- □ fish 60
- □ pasta 30
- □ lamb 10
- □ chicken 80

She decides to write a comment about the results on social media.

How many students chose fish as their favourite meal? You must show all your working.

Fish = 60
Pasta = 30
Lamb = 10
Chicken = 80

(60 students)

(Total for Question 2 is 4 marks)

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Examiner comments

Q2) 0 marks

No working is shown.

It is an OFQUAL requirement that some reasoning is shown in questions. This is problem solving attribute 6. In our papers we display when this is a strict requirement with the phrase 'You MUST show all your working. Centres should be aware of this and communicate this fact to learners.

Here the answer is correct but at no point does the learner show any working out.

Hence due to the rules of the specification this answer gains no marks.

Had there been working out shown we could have awarded the marks.
3. Patrick needs to put fence panels around a field. The field is in the shape of a rectangle.

Patrick will leave a gap of 260 cm for a gate.
Each fence panel is 1.8 m long.
Patrick can cut and join the fence panels.

Work out the total number of fence panels Patrick needs to put around this field.

\[
\begin{align*}
40 \text{ m} + 40 \text{ m} &= 80 \text{ m}^2 \\
45 \times 45 &= 2025 \text{ m}^2 \\
90 + 80 &= 170 \text{ m}^2 \\
1 \text{ m} &= 100 \text{ cm} \\
170 \times 100 &= 17000 \\
17000 - 260 &= 16740 \\
16740 \div 100 &= 167.4 \\
167.4 \div 18 &= 9.3 \\
\end{align*}
\]

93 fence panels

(Total for Question 3 is 5 marks)
Examiner comments

Q3) 5 marks

The learner adds to show they are working correctly with perimeter.

There is a conversion of metres to centimetres and back again to metres.

The division by 1.8 is seen and the accurate figure given.

The conversion mark (first process mark) is awarded for just one conversion.

The second mark is awarded for the first addition.

The third process mark can be awarded when 17000 - 260 is seen.

The last process mark does require a full process.

Accuracy is awarded for 93 in this question.
4. Varna works in a bookshop.

The table shows the number of books she sold in the last four weeks.

<table>
<thead>
<tr>
<th>week</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>books sold</td>
<td>175</td>
<td>129</td>
<td>215</td>
<td>150</td>
</tr>
</tbody>
</table>

Varna begins to show this information in a chart.

On the grid, complete a suitable chart for Varna.

(Total for Question 4 is 3 marks)
Examiner comments

Q4) 3 marks

This is a fully correct bar chart.

The axes are labeled and the linear scale continued correctly. Each bar is drawn within the tolerance allowed.
Joe sells cars.
He sold 840 cars last year.
220 of these cars were petrol cars.
All the other cars he sold were electric cars.
Joe writes a report for his manager.
He states,
“1 sold 6 times as many petrol cars as electric cars last year.”

Is this statement correct?
You must show your working.

\[ 840 - 220 = 620 \]
\[ 620 \times 6 = 3720 \]

His correct

(Total for Question 5 is 3 marks)
Examiner comments

Q5) 3 marks

A decision is required here.

It is seen in the final box.

This decision must be supported by working.

The learner has shown working in this question and so marks were awarded.

The difference is found and the use of 6 is appropriate to allow a comparison to be made.
Raphael owns a barber shop.
The table shows the number of customers who had a haircut last week at the shop.

<table>
<thead>
<tr>
<th></th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>58</td>
<td>64</td>
<td>49</td>
<td>73</td>
<td>89</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>Tue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Wed</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The price of a haircut was £8.
Next week Raphael will
- increase the price of a haircut by 25%
- have the same mean daily number of customers.

Raphael thinks his mean daily income next week will be more than £750.

Is Raphael correct? Show why you think this.

\[ 25\% \text{ of } 28 = 2 \]
\[ \frac{25}{100} \times 28 = 2 \]
\[ 8 + 2 = 10 \]

<table>
<thead>
<tr>
<th>Day</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>58</td>
<td>64</td>
<td>49</td>
<td>73</td>
<td>89</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
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</tr>
<tr>
<td>Wednesday</td>
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<td>Thursday</td>
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<tr>
<td>Friday</td>
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<td>64</td>
<td>103</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Saturday</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunday</td>
<td>532</td>
<td>64</td>
<td>103</td>
<td>89</td>
<td>96</td>
<td>103</td>
<td></td>
</tr>
</tbody>
</table>

\[ 532 \div 7 = 76 \]
\[ 76 \times 10 = 760 \]

\[ £60 \] (Total for Question 6 is 6 marks)
### Examiner comments

**Q6) 5 marks**

This is a multi-step problem.

Note this learner chooses to increase the price of a hair cut by 25% first.

The working is clear and $8 + 2$ is shown.

At this point the C and D mark can be awarded. The mark scheme is written such that C and D may be awarded independently of marks A and B.

A and B are awarded for the full process to work out the mean number of customers per day.

We see $76 \times 10$ and so the final process mark can be awarded.

The answer of 760 is correct BUT no decision is given. Hence the last mark cannot be awarded.

Learners should be reminded to check when decisions are required. Is Raphael correct? must be answered as this is complying with Problem solving attribute 4.
7 Here is a cuboid.

Calculate the volume of the cuboid. Remember to give units with your answer.

\[ 8 \times 8 \times 17 = 1088 \text{ cm}^3 \]

\[ 1 \times 1 = 289 \text{ cm}^2 \]

(Total for Question 7 is 3 marks)
## Examiner comments

Q7) **1 mark**

8 x 8 x 17 is enough for the first mark.

Unfortunately, an additional process is carried out.

The final answer in the answer box is incorrect so the accuracy mark cannot be awarded.

The question does remind the learner to give units and they do not. Hence the independent unit mark cannot be awarded.
Anju works at a town hall. The town population is four hundred and seventy thousand and fifteen. Anju uses this rule to work out how many people in the town have a full-time job.

\[ \text{town population} \rightarrow \text{multiply by 0.6} \rightarrow \text{number of people with full-time job} \]

Anju thinks 272019 people in the town have a full-time job.

Is Anju correct? Show why you think this.

\[ 47015 \times 0.6 = 28,209 \]

(3)

\[ 28,209 \]
### Examiner comments

**Q8) 1 mark**

The mark is given for using the formula correctly eg interpretation of multiply the 'town population' by 0.6

The initial error of not being able to write the number given in words as an accurate figure means that neither the first nor the last mark can be awarded.

Reading and writing of large numbers is a requirement of the specification and centres should have learners practice this skill.

House prices are often a good functional example for centres to use.

(Compare regions within the UK).
9 Wesley is planning his new bathroom. He will put a bath and a sink in the bathroom.

The bath needs
- a rectangular space 1.75 m by 1 m
- to be against the back wall
- to be an equal distance from both side walls.

The sink needs
- a square space 0.5 m by 0.5 m
- to be against a side wall
- to be at least 1 m from the bath
- to be at least 1 m from the doorway.

Show a space for the bath and a space for the sink on the grid. Remember to use the scale and label each item.
Examiner comments

Q9) 1 mark

The bath is labelled on the diagram.

It is a rectangle, 1 square by 7 squares in size with the long side against the back wall and equidistant from each side walls.

This allows the award of the first mark BUT the lack of 4 squares for the width means that the second mark cannot be awarded.

No square is dawn on the grid, so marks C and D cannot be awarded.
Here are some numbers.

-42.4, -11.3, -9.1, 4.6, 2, 5, 39.8, 46, 58.6, 63.1

(a) Work out the range of these numbers.

\[ \text{Range} = 63.1 - 9.3 = 53.8 \]

(b) Show a check of your answer.

\[ 63.1 - 9.3 = 53.8 \]
Examiner comments

Q10) 0 marks

No check is given.

Some crossed out work is seen but 72.8 is left and is judged as what the learner requires marking.
11 Charly is organising a party. She needs to buy 90 party plates.
She finds this offer.

pack of 6 plates
normal price £3.55
now \( \frac{1}{2} \) off the normal price

Charly has £45 to spend on the plates.

Does Charly have enough money to buy 90 plates?
Show why you think this.

\[
\begin{align*}
1.5 \times 3.55 &= 0.71 \\
2.84 &= 0.71 \\
2.84 \times 90 &= 255.6 \\
90 \div 6 &= 15 \times 2.84 = 42.60
\end{align*}
\]

Yes he has enough money.

Total for Question 11 is 5 marks.
Examiner comments

Q11) 5 marks

The first step shown is to work with the fractional discount.

Working out one fifth and then subtracting is fine for the B and C marks.

The learner then takes the price per plate and multiples by 90, they seem to stop this method here.

However, the learner then divides 90m by 6 and can be awarded the A mark.

Everything is bought together with 15 x 2.84 and so the D mark can be awarded.

42.60 is seen and compared to 45 with a decision given indicating this, at this point the final mark can be awarded.

Total marks learner has achieved for the whole paper is 32 marks, which is the threshold pass mark for this retired set.