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.
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?

\[
\frac{800 \times 6}{24} = 5 \times 300 = 300
\]

300 toys

(Total for Question 1 is 3 marks)
**Examiner comments**

1. **1 mark.**

The learner finds the total number of toys made in 6 hours. The first mark is awarded.

They try to find 5% by dividing by 0.05, multiplying by this figure would have been correct.
2

(a) Write 0.3 as a fraction.

\[
\frac{3}{100}
\]

(b) Work out 1.6 \times 1000

\[
\frac{1000}{1.6} = \frac{16000}{16} = 1600
\]

(c) Write 19.075 correct to 1 decimal place.

\[
19.1
\]

(Total for Question 2 is 3 marks)
Examiner comments

2a) 0.3 is 3/10 so this underpinning question is incorrectly answered. **0 marks**

2b) An inability to multiply by 1000 is displayed. The learner puts down 3 zeros and writes 16.

None of this is correct. The ability to multiply by 10 or 100 or 1000 is a specification reference. **0 marks**

2c) A correctly rounded figure is given. **1 mark**
(a) Work out \( \frac{17 - 3}{2} + 4^2 \)

\[ \frac{14}{2} + 16 \]

\[ 7 + 16 \]

\[ 23 \]

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

(Total for Question 3 is 4 marks)
## Examiner comments

### 3a) 3 marks

The correct answer is seen.

This is supported by the clear working.

### 3b) 0 marks

No attempt at a check is given.

23 - 7 = 16 would have been a simple example for this leaner to use.
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.

\[
\begin{align*}
7 \text{m} - 5 \text{m} &= 2 \text{m} \\
9 \text{m} - 3 \text{m} &= 6 \text{m} \\
6 \text{m} \times 2 \text{m} &= 12 \text{m}^2
\end{align*}
\]

The area for the grass is 12 m².
Examiner comments

4) 2 marks

Both missing lengths are found, one is enough for the first mark.

6 x 2 is sufficient for the second mark as it is a relevant area.

No more working is given and so no more marks can be awarded.
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 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:** 5:30 hours
**Mobile:** 40 minutes
**TV:** 3:45 hours

5:30
6:10
8:35

No, Alan spent 6.55 hours looking at different screens on Monday.

6.55 hours or 6 11/20 hours

(Total for Question 1 is 3 marks)
**Examiner comments**

1) **2 marks**

The time conversion mark can be given when we see 3.45 hours, the notation is not quite correct, but the conversion is seen. 5:30 is also fine.

The full process to add time has been awarded, with the benefit being given to the leaner.

It has been judged that they attempt to add 3 45, 5 30 and 40 by the counting on seen.

The answer is incorrect as the 3 hours 45 mins have not been added on correctly.
2. Sarah sees this poster about results of a survey about favourite meals in the school canteen.

- Fish: 160 students
- Pasta: 120 students
- Lamb: 40 students
- Chicken: 80 students

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.
### Examiner comments

2) **1 mark**

120 degrees is written near the correct sector.

This has been deemed working.

No other working is shown.
Patrick needs to put fence panels around a field. The field is in the shape of a rectangle.

45 m

40 m

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.

40 m - 2.6 m = 37.4 m
40 m x 45 m = 1800
1800 - 260 = 1540
1540 ÷ 1.8 = 855.55

Patrick needs 856.55 panels or 856 panels to put around this field.

(Total for Question 3 is 5 marks)
### Examiner comments

3) **1 mark**

2.6 has been converted from 260 cm, a correct conversion is seen, 1 mark can be given.

The answer of 855.55 or 856 comes from the use of area rather than perimeter. No marks can be awarded for this.

Although 40 -2.6 is seen it is not used and in fact 1800 -260 directly contradicts this. Hence by the rules of choice no mark is awarded.
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>number of books sold</td>
<td>175</td>
<td>120</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.
### Examiner comments

4) 2 marks

The linear scale can be clearly seen.

The points can just be seen plotted. They have been deemed to be within tolerance and so two marks have been awarded.

The points have been plotted in the order of the table so the plotting mark can be given.
Joe sells cars.
He sold 840 cars last year.
720 of these cars were petrol cars.
All the other cars he sold were electric cars.

Joe writes a report for his manager.
He states,

“I sold 6 times as many petrol cars as electric cars last year.”

Is this statement correct?
You must show your working.

\[ 840 - 720 = 120 \]
\[ 120 \times 6 = 720 \]

Yes, Joe sold 6 times as many petrol cars as electric cars last year.
<table>
<thead>
<tr>
<th>Question</th>
<th>Process</th>
<th>Mark</th>
<th>Mark Grid</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q5</td>
<td>Begins to work with total or multiplier</td>
<td>1 or A</td>
<td>e.g. $840 - 720 = (-120)$ OR $720 ÷ 6 = (-120)$ OR $840 ÷ (6 + 1) = (-120)$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Full process to find figures to compare</td>
<td>2 or AB</td>
<td>e.g. ‘$120 \times 6 = (-720)$’ OR $840 - 720 = (120) \text{ AND } 720 ÷ 6 = (120)$ OR ‘$120 ÷ 720 = (0.166)$’ AND $1 ÷ 6 = (0.166)$ OR $840 ÷ (6 + 1) = (120) \text{ AND } 840 - 720 = (-120)$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Valid decision with accurate figures supported by working</td>
<td>3 ABC</td>
<td>e.g. Yes AND $720$ (from ‘$120 \times 6$’) OR Yes AND $120$ (from two correct processes) OR Yes AND $0.166$ (from two correct processes) OR Yes AND $6 : 1$ (from correct simplification of $720 ÷ 120$)</td>
<td></td>
</tr>
</tbody>
</table>

Total marks for question 3

Examiner comments

5) 3 marks

A decision and accurate figures are seen in this example. Full working is seen.

All the marks can be awarded.
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>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>58</td>
<td>64</td>
<td>49</td>
<td>71</td>
<td>89</td>
<td>96</td>
<td>103</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.

608 per day this week

£580
£640
£490
£730
£980
£1030
5320

5320 / 7 ≈ £760

Yes, it’s £760 daily.

Yes, £760.00.

(Total for Question 4 is 5 marks.)
### Examiner comments

6) **6 marks**

Although 10 is not seen it has clearly been used to find 580, 690, 490 etc.

The mean of these number is then found.

The accurate answer is given with a decision.

Marks C, D and E are implied by accurate use of 10. A and B are awarded for the mean.

F is awarded for accuracy and decision.

If the learner had made an error in calculating 10 we would not be able to see this and others figures would not have been accurate then the implied marks could not be awarded.

Showing working is always the better option so partial marks can be awarded when errors are seen.
7  Here is a cuboid.

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

8 cm \times 17 = 136 \text{ cm}^3

136 \text{ cm}^3
Examiner comments

7) 0 marks

No attempt at volume is made.

The units stated are incorrect.
8. 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.

```
town population ➔ multiply by 0.6 ➔ number of people with full-time job
```

Anju thinks 272,019 people in the town have a full-time job.

Is Anju correct?
Show why you think this.

\[ 900,7015 \times 0.6 = 2409,209 \]

Anju is not correct.

2409,209
Examiner comments

8) 2 marks

400 is written as a number not taking into account place value.

No first mark can be awarded.

The formula is correct, the process mark can be awarded.

The initial figure is 7 digits long, the answer is accurate for their figure, the decision is also correct for their figure so the last mark can be awarded as a follow through.
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.

(Total for Question 9 is 4 marks)
A rectangle 4 squares by 7 squares is drawn along the back wall. However, this is not equidistant from each side wall so only 1 mark can be awarded.

A correctly sized square is drawn but it is too close to the bath so only the C mark can be awarded.
Here are some numbers:

| 27.5 | -17.3 | 63.1 | 4.6 | -42.4 | 39.8 | -9.7 | 58.6 |

(a) Work out the range of these numbers.

\[
\begin{align*}
27.5 + (-17.3) + 63.1 + 9.6 + 49.9 + 39.8 + (-9.9) + 58.6 &= 129.16 = 2 \\
129.16 - 8 &= 15.52
\end{align*}
\]

(b) Show a check of your answer.

\[
15.52 \times 8 = 124.16
\]

(Total for Question 10 is 3 marks)
Examiner comments

10a) 0 marks

This question requires the range to be found.

However, this learner attempts to find the mean, so no marks are awarded.

10b) 1 mark

Although part a is incorrect, this learner does a reverse check of what they believe to be the range. We can credit this as a check of their answer and the mark has been awarded.
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 £1.19 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.

£3.55 ÷ 6 = £0.59
90 ÷ 15 = 6
15 x £2.81 = £42.15

Charly has enough money to buy 90 plates.

£42.60

(Total for Question 11 is 5 marks)
Examiner comments

11) 5 marks

A multi stepped problem.

The fractional reduction is found first award marks B and C.

90 divided by 6 is done next, we can now award the A mark.

The full process to work out the cost is seen so the D mark can be awarded.

The sentence written clearly indicates the decision and along with the accurate figure is enough for the last mark to be awarded.

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