# Functional Skills Maths | Level 1 Exemplar | Set 6 | Learner 2 

## 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.

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| PMAT1/N06 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Question | Process | Mark | Mark Grid | Evidence |
| Q1 | Begins to work with total number of toys or percentage | 1 or | A | $\begin{aligned} & 800 \times 6(-4800) \text { OR } \\ & 800 \times 5 \div 100(-40) \mathrm{oe} \end{aligned}$ |
|  | Full process to find total number of toys checked | 2 or | AB | $\begin{aligned} & { }^{4} 4800 \text { ' } \times 5 \div 100(=240) \text { oe } \mathbf{O R} \\ & { }^{4} 40^{\prime} \times 6(-240) \end{aligned}$ |
|  | Accurate figure | 3 | ABC | 240 |
|  | Total marks for question | 3 |  |  |

## 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.

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(Total for Question 2 is 3 marl/s)

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| Question | Process | Mark | Mark <br> Grid | Evidence |  |  |  |
| :--- | :--- | :---: | :---: | :--- | :---: | :---: | :---: |
| Q2(a) | Accurate figure | 1 | A | $\frac{3}{10}$ oe |  |  |  |
| Q2(b) | Accurate figure | 1 | B | 1600 |  |  |  |
| Q2(c) | Accurate figure | 1 | C | 19.1 |  |  |  |
| Total marks for question |  |  |  |  |  | 3 |  |

## Examiner comments

2a) 0.3 is $3 / 10$ so this underpinning question is incorrectly answered. $\mathbf{0}$ 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. $\mathbf{0}$ marks

2c) A correctly rounded figure is given. 1 mark

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| Question | Process | Mark | Mark <br> Grid | Evidence |  |  |  |
| :--- | :--- | :---: | :---: | :--- | :---: | :---: | :---: |
| Q3(a) | Begins to work with operators | 1 or | A | $17-3(-14) \mathrm{OR}$ <br> $4 \times 4(-16)$ |  |  |  |
|  | Full process to find accurate figure | 2 or | AB | ${ }^{\prime} 14^{\prime} \div 2+^{\prime} 16^{\prime}(-23)$ |  |  |  |
|  | Accurate figure | 3 | ABC | 23 |  |  |  |
| Q3(b) | Valid reverse calculation check | 1 | D | Valid check, e.g. 23 -7-16 |  |  |  |
| Total marks for question |  |  |  |  |  |  | 4 |

## Examiner comments

3a) $\mathbf{3}$ 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.

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(Total for Question 4 is 4 marks) 2

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## Examiner comments

## 4) $\mathbf{2}$ marks

Both missing lengths are found, one is enough for the first mark.
$6 \times 2$ 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.

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| PMAT1/C06 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Question | Process | Mark | Mark Grid | Evidence |
| Q1 | Process to convert at least one time | 1 | A | $\text { e.g. } 0.5 \times 60(=30) \text { or } 40 \div 60\left(=\frac{2}{3}\right) \text { or } \frac{3}{4} \times 60(=45)$ <br> May be seen or implied in subsequent working |
|  | Full process to work with time (may not all be converted) | 1 or | B | $\begin{aligned} & \text { e.g. } 5 \text { (hrs) } 30 \text { (mins) }+40 \text { (mins) }+{ }^{\prime} 3 \text { (hrs) } 45 \text { (mins)' }(-9 \text { hrs } 55 \\ & \text { mins) OR } \\ & \text { '600' } \left.-2255^{\prime}-330^{\prime}-40 \text { ( }-5 \text { mins }\right) \end{aligned}$ |
|  | Valid decision with accurate figures | 2 | BC | No AND 9 (hrs) 55 (mins) oe OR No AND 5 (mins shorter) |
|  | Total marks for question | 3 |  |  |

## Examiner comments

## 1) $\mathbf{2}$ 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 345,530 and 40 by the counting on seen.

The answer is incorrect as the 3 hours 45 mins have not been added on correctly.

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## Examiner comments

2) $\mathbf{1}$ mark

120 degrees is written near the correct sector.

This has been deemed working.

No other working is shown.

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(Total for Question 3 is 5 marls 1

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| Question | Process | Mark | Mark Grid | Evidence |
| :---: | :---: | :---: | :---: | :---: |
| Q3 | Uses consistent units | 1 | A | e.g. 2.6 or 4000 or 4500 or 17000 or 180 <br> May be seen or implied in subsequent calculations |
|  | Process to find perimeter of the field or works with the gap or the panel size | 1 or | B | $\begin{aligned} & 40 \times 2+45 \times 2(=170) \text { OR } \\ & 40-2.6 \text { ' }(=37.4) \text { oe } \mathbf{O R} \\ & 40 \div 1.8(=22.22 . .) \text { or } 45 \div 1.8(=25) \text { or ' } 2.6^{\prime} \div 1.8(=1.44 . .) \end{aligned}$ |
|  | Process to find total required length of fence panels or number of panels for at least 2 lengths | 2 or | BC | $\begin{aligned} & \text { e.g. '170' - '2.6' }(=167.4) \text { OR } \\ & \text { '170' } \div 1.8(=94.4 .) \text { OR } \\ & \prime 22.22 . .{ }^{\prime}+{ }^{\prime} 25^{\prime}(=47.22 . .) \text { or }{ }^{\prime} 255^{\prime} \times 2(=50) \end{aligned}$ |
|  | Full process to find total number of fence panels required | 3 or | BCD | $\begin{aligned} & \text { e.g. '167.4' } \div 1.8(=93) \text { OR } \\ & \text { '94.4..' }-1.44 . . \prime(=93) \text { OR } \\ & ' 25 \prime \times 2+' 22.22 . . \text { ' } \times 2-(' 2.6 ' \div 1.8)(=93) \end{aligned}$ |
|  | Accurate figure | 4 | BCDE | 93 |
|  | Total marks for question | 5 |  |  |

## Examiner comments

## 3) $\mathbf{1}$ 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.

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| Question | Process | Mark | Mark <br> Grid | Evidence |
| :--- | :--- | :---: | :---: | :--- |
| Q4 | Begins to draw a chart | 1 or | A | One of: <br> Completes linear scale <br> Correct labels on horizontal and vertical axes <br> Accurate plotting |
| Develops chart | 2 or | AB | Two of: <br> Completes linear scale <br> Correct labels on horizontal and vertical axes <br> Accurate plotting |  |
| Fully correct chart | 3 | ABC | All of: <br> Completes linear scale <br> Correct labels on horizontal and vertical axes <br> Accurate plotting |  |
| Total marks for question | 3 | Minimum labels (W) $1,2,3,4$, week(s), (number of) books (sold) |  |  |

## Examiner comments

## 4) $\mathbf{2}$ 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.

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## Functional Skills Maths | Level 1 Exemplar | Set 6 | Learner 2

| Question | Process | Mark | $\begin{gathered} \text { Mark } \\ \text { Grid } \end{gathered}$ | Evidence |
| :---: | :---: | :---: | :---: | :---: |
| Q5 | Begins to work with total or multiplier | 1 or | A | $\begin{aligned} & \text { e.g. } 840-720(=120) \text { OR } \\ & 720 \div 6(-120) \text { OR } \\ & 840 \div(6+1)(-120) \end{aligned}$ |
|  | Full process to find figures to compare | 2 or | AB | $\begin{aligned} & \text { e.g. ' } 120 \text { ' } \times 6(=720) \text { OR } \\ & 840-720(-120) \text { AND } 720 \div 6(-120) \text { OR } \\ & \text { ' } 120 \div 720(=0.166 \ldots) \text { AND } 1 \div 6(=0.166 . .) \text { oe OR } \\ & 840 \div(6+1)(-120) \text { AND } 840-720(=120) \end{aligned}$ |
|  | Valid decision with accurate figures supported by working | 3 | ABC | e.g. Yes AND 720 (from ' $120^{\prime} \times 6$ ) OR <br> Yes AND 120 (from two correct processes) OR <br> Yes AND 0.16(6..) (from two correct processes) oe OR <br> Yes AND 6:1 (from correct simplification of 720 : ' 120 ') <br> NB This question requires working shown |
|  | Total marks for question | 3 |  |  |

## Examiner comments

## 5) $\mathbf{3}$ marks

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

All the marks can be awarded.

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| 6 Raphael owns a barber shop. <br> The table shows the number of customers who had a haircut last week at the shop. |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mon | Tue | Wed | Thu | Fri | Sat | Sun |  |
|  | 58 | 64 | 49 | 73 | 89 | 96 | 103 |  |
| The price of a haircut was $£ 8$ <br> Next week Raphael will <br> - increase the price of a haircut by $25 \%$ <br> - have the same mean daily number of customers. <br> Raphael thinks his mean daily income next week will be more than $£ 750$ |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Is Raphael correct? <br> Show why you think this. $608 \text { per day } \in T \text { his week }$ <br> $\pm 580$ <br> £ 490 <br> $\pm 730$ <br> $\pm 890$ $\begin{aligned} & 532087=E 760 \\ & \text { yes, is } £ 760 \text { daily } \end{aligned}$ <br> $\pm 960$ <br> $\frac{1030}{f 5320}$ |  |  |  |  |  |  |  |  |

Pearson

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## Examiner comments

## 6) $\mathbf{6}$ 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 leaner 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.

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| Question | Process | Mark | Mark <br> Grid | Evidence |  |
| :--- | :--- | :---: | :---: | :--- | :--- |
| Q7 | Full process to find volume | 1 or | A | $8 \times 8 \times 17(=1088)$ |  |
|  | Accurate figure | 2 | AB | 1088 |  |
| Correct unit of capacity | 1 | C | $\mathrm{cm}^{3}$ |  |  |
| Total marks for question |  |  |  |  | 3 |

## Examiner comments

7) $\mathbf{0}$ marks

No attempt at volume is made.

The units stated are incorrect.

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| Question | Process | Mark | Mark <br> Grid | Evidence |
| :--- | :--- | :---: | :---: | :--- |
| Q8 | Correct figure | 1 | A | 470015 |
| Full process to find figures to compare | 1 or | B | \{population \} $\times 0.6(=282009)$ OR <br> $272019 \div 0.6(=453365)$ |  |
| Valid decision with accurate figures ft their <br> population provided at least 5 digits | 2 | BC | No AND 282009 OR <br> No AND 470015 and 453 365 |  |
| Total marks for question |  |  |  |  |

## Examiner comments

## 8) $\mathbf{2}$ 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.

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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.

side wall
Key
Key
1 square on the grid is 0.25 m by 0.25 m in the bathroom
1 square on the grid is 0.25 m by 0.25 m in the bathroom


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| Question | Process | Mark | Mark <br> Grid | Evidence |
| :---: | :---: | :---: | :---: | :---: |
| Q9 | Begins to draw the bath | 1 or | A | Rectangle with 2 of: <br> side length 7 squares <br> side length 4 squares <br> against the back wall <br> equal distance from the side walls |
|  | Fully correct drawing for bath | 2 | $A B$ | Rectangle with all of: <br> side length 7 squares <br> side length 4 squares <br> against the back wall and equal distance from the side walls |
|  | Begins to draw the sink | 1 or | C | Square with 2 of: <br> side length 2 squares <br> against the side wall <br> at least 4 square lengths from the doorway and the bath |
|  | Fully correct drawing for sink | 2 | CD | Square with all of <br> side length 2 squares <br> against the side wall <br> at least 4 square lengths from the doorway and the bath <br> NB rectangle and square do not need to be labelled |
|  | Total marks for question | 4 |  |  |

## Examiner comments

## 9) $\mathbf{2}$ marks

A rectangle 4 squares by 7 squares is drawn along the back wall. However, this is not equidistant form each side wall so only 1 mark can be awarded.

A correctly sized square is drawn but it is to close the bath so only the C mark can be awarded.

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10 Here are some numbers.
(a) Work out the range of these numbers.

$$
\begin{aligned}
& \text { (a) Work out the range of these numbers. } \\
& 27.5+(-17.3)+63.1+9.6+(-42.9)+398 \\
& +(-97)+58.6=129.16-2 \\
& 1291688=1552
\end{aligned}
$$

$$
15.52
$$

(b) Show a check of your answer.

$$
15.52 \times 8=1241.6
$$

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| Question | Process | Mark | Mark <br> Grid | Evidence |
| :--- | :--- | :---: | :---: | :--- |
| Q10(a) | Process to find the range | 1 or | A | $63.1--42.4(=105.5)$ OR <br> -42.4 to 63.1 |
|  | Accurate figures | 2 | AB | 105.5 |
| Q10(b) | Valid check | 1 | C | Valid check, e.g. 105.5 -63.1 $=42.4$ OR <br> $106-63=43$ |

## Examiner comments

10a) $\mathbf{0}$ 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.

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11 Charly is organising a party.
She needs to buy 90 party plates.
She finds this offer.


Charly has $£ 45$ to spend on the plates.
Does Charly have enough money to buy 90 plates?
Show why you think this.

$$
\begin{array}{ll}
\text { Show why you thank this } \\
\begin{array}{ll}
3.55 \div 5=50.71 & £ 35 \\
90 \div 6=15 & \frac{-0.71}{E 2.84} \\
15 \times 2.89=£ 42.60 &
\end{array}
\end{array}
$$

Charlie have e hough money t to buy 90 plates.
now $\frac{1}{5}$ off the normal price

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| Question | Process | Mark | Mark Grid | Evidence |
| :---: | :---: | :---: | :---: | :---: |
| Q11 | Process to find required number of packs or cost per plate | 1 | A | $\begin{aligned} & 90 \div 6(=15) \mathrm{OR} \\ & 3.55 \div 6(=0.59 \ldots) \end{aligned}$ |
|  | Process to work with fraction | 1 or | B | $\begin{aligned} & \text { e.g. } 3.55 \div 5(=0.71) \text { OR } \\ & \text { ' } 53.25 \text { ' } \div 5(=10.65) \text { OR } \\ & { }^{0.59 . . ' ~} \div 5(=0.118 . .) \end{aligned}$ |
|  | Full process to find discounted cost of a pack or a plate | 2 | BC | $\begin{aligned} & \text { e.g. } 3.55-{ }^{\prime} 0.71 \text { ' }(=2.84) \text { OR } \\ & ' 53.25^{\prime}+5 \times 4(=42.6) \text { oe } \mathbf{O R} \\ & 0.59 . .+5 \times 4(=0.473 \ldots) \text { oe } \end{aligned}$ |
|  | Full process to find figures to compare | 1 or | D | $\begin{aligned} & \text { ' } 2.84 \text { ' } \times \text { ' } 15 \text { ' }(=42.6) \text { OR } \\ & 45 \div 90(=0.5) \text { OR } \\ & 3.55 \times 15 \text { ' }(=53.25) \text { OR } \\ & 45 ~^{\prime} 15^{\prime}(=3) \end{aligned}$ |
|  | Valid decision with accurate figure | 2 | DE | $\begin{aligned} & \text { Yes AND }(£) 42(.6) \text { OR } \\ & \text { Yes AND }(£) 0.5 \text { and }(£) 0.4(73 . .) \text { OR } \\ & \text { Yes AND }(£) 3 \text { and }(£) 2(.84) \end{aligned}$ |
|  | Total marks for question | 5 |  |  |

## 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 $\mathbf{3 2}$ marks, which is the threshold pass mark for this retired set.

