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

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



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

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

## 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.

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


(c) Write 19,075 correct to 1 decimal place.

(Total for Question 2 is 3 marks 2

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

| Question | Process |  | Mark | Mark <br> Grid |
| :--- | :--- | :---: | :---: | :--- |
| 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 |  |  |  |  |
| $\mathbf{3}$ |  |  |  |  |

## 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. $\mathbf{O}$ marks

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



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

| 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 | $'^{\prime} 14^{\prime} \div 2+^{\prime} 16 '(=23)$ |
| Accurate figure | 3 | ABC | 23 |  |
| Q3(b) | Valid reverse calculation check | 1 | D | Valid check, e.g. 23-7=16 |
| Total marks for question |  |  |  |  |

## 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 leaner 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 $14+3$

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



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



## 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.
$9 \times 5$ 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.

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



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

| PMAT1/C06 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Question | Process | Mark | Mark Grid | Evidence |
| Q1 | Process to convert at least one time <br> Full process to work with time (may not all be converted) <br> Valid decision with accurate figures | 1 <br> 1 or <br> 2 | A <br> B <br> BC | $\text { e.g. } 0.5 \times 60(=30) \text { or } 40 \div 60\left(=\frac{2}{3}\right) \text { or } \frac{3}{4} \times 60(=45)$ <br> May be seen or implied in subsequent working <br> e.g. 5 (hrs) 30 (mins) +40 (mins) + ' 3 (hrs) 45 (mins)' ( $=9$ hrs 55 mins) OR $' 600 \text { ' - '225' - ' } 330^{\prime}-40(=5 \mathrm{mins})$ <br> No AND 9 (hrs) 55 (mins) oe OR <br> No AND 5 (mins shorter) |
|  | Total marks for question | 3 |  |  |

## 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.

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



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

| Question | Process | Mark | Mark Grid | Evidence |
| :---: | :---: | :---: | :---: | :---: |
| Q2 | Measures value of angle in "fish" sector <br> Works with proportion <br> Full process to find the number of students <br> Accurate figure from working | 1 <br> 1 or <br> 2 or <br> 3 | A <br> B <br> BC <br> BCD | $\begin{aligned} & 120^{\circ}\left( \pm 2^{\circ}\right) \\ & \text { e.g. } 360 \div\{\text { angle }\}(=3) \text { OR } \\ & 360 \div 180(=2) \text { OR } \\ & 180 \div 360(=0.5) \text { OR } \\ & \text { \{angle }\} \div 360(=0.33 . .) \\ & \\ & \text { e.g. } 180 \div{ }^{\prime} 3^{\prime}(=60) \text { OR } \\ & \text { \{angle }\} \div 2^{\prime}(=60) \text { OR } \\ & \text { ' } 0.5 \text { ' } \times\{\text { angle }\}(=60) \text { OR } \\ & \text { ' } 0.33 . . .^{\prime} \times 180(=60) \\ & \\ & 60 \\ & \text { Ft their angle } \\ & \text { NB This question requires working shown } \end{aligned}$ |
|  | Total marks for question | 4 |  |  |

## 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.

## Pearson

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



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

| 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 | $\begin{array}{\|l} 40 \times 2+45 \times 2(=170) \text { OR } \\ 40-2.6 \text { ' }(=37.4) \text { oe } \mathbf{O R} \\ 40 \div 1.8(=22.22 . .) \text { or } 45 \div 1.8(=25) \text { or ' } 2.6 \text { ' } \div 1.8(=1.44 . .) \end{array}$ |
|  | Process to find total required length of fence panels or number of panels for at least 2 lengths | 2 or | BC | $\begin{aligned} & \text { e.g. ' } 170 \text { ' }- \text { ' } 2.6 \text { ' }(=167.4) \text { OR } \\ & ' 170 \text { ' } \div 1.8(=94.4 . .) \text { OR } \\ & \text { ' } 22.22 . .^{\prime}+' 25 \text { ' }(=47.22 . .) \text { or ' } 25^{\prime} \times 2(=50) \end{aligned}$ |
|  | Full process to find total number of fence panels required | 3 or | BCD | $\begin{aligned} & \text { e.g. '167.4' } \div 1.8(=93) \text { OR } \\ & \text { ' } 94.4 . . '-\text { ' } 1.44 . . \text { ' }(=93) \text { OR } \\ & ' 255^{\prime} \times 2+' 22.22 . . \text { ’ } \times 2-\left(' 2.6^{\prime} \div 1.8\right)(=93) \end{aligned}$ |
|  | Accurate figure | 4 | BCDE | 93 |
| Total marks for question |  | 5 |  |  |

## 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.

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



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

| 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) |  |  |

Example solution for Q4


## 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.

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



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

| Question | Process | Mark | Mark Grid | 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 | $\begin{aligned} & \text { e.g. ' } 120 \text { ' } \times 6(=720) \text { OR } \\ & 840-720(=120) \text { AND } 720 \div 6(=120) \text { OR } \\ & ‘ 120 \div 720(=0.166 . .) \text { AND } 1 \div 6(=0.166 . .) \text { oe OR } \\ & 840 \div(6+1)(=120) \text { AND } 840-720(=120) \end{aligned}$ |
|  | Valid decision with accurate figures supported by working | 3 | ABC | e.g. Yes AND 720 (from ' 120 ' $\times 6$ ) 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

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.

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


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(Total for Question 6 is 6 marld 5

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



## 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.

## Pearson

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



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

| 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

Q7) 1 mark
$8 \times 8 \times 17$ is enough for the first mark.
Unfortunately, an additional process is carried out.
The final answer in the answer box ix 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.

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



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

| 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 |  |

## 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).

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



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

| Question | Process | Mark | $\begin{gathered} \text { Mark } \\ \text { Grid } \end{gathered}$ | 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 | AB | 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 |
|  |  |  |  | NB rectangle and square do not need to be labelled |
|  | Total marks for question | 4 |  |  |

Example solution for Q9


## 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 gird, so marks C and D cannot be awarded.

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



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

| 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

## 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.

## Pearson

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



Yes the has enough


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

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

## 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 90 m by 6 and can be awarded the $A$ mark.
Everything is bought together with $15 \times 2.84$ 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.

