

## Functional Skills Maths | Level 2 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.

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

SECTION A

Answer ALL questions. Write your answers in the spaces provided.

- 1 Jai needs to buy 25 lollipops for a party.  
He sees this offer.

1 Q01A  
1 Q01B  
1 Q01C



Jai knows a normal selection bag contains 18 lollipops.  
He thinks he will have enough lollipops if he buys a selection bag with this offer.

Is Jai correct?  
Show why you think this.

(3)

$$18 \div 3 = 6$$

$$6 + 18 = 24$$

$$1 \text{ bag} + \frac{1}{3} = 24$$

No, he will not have enough  
lollipops.

24 lollipops

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

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| PMAT2/N06                       |   |          |           |  |
|---------------------------------|---|----------|-----------|--|
| Question                        | Process                                 | Mark     | Mark Grid | Evidence   |
| Q1(a)                           | Begins to work with fraction            | 1 or     | A         | $1 + \frac{1}{3} (= \frac{4}{3})$ OR<br>$0.33.. \times 18 (=6)$ OR<br>$25 - 18 (=7)$   |
|                                 | Full process to find figures to compare | 2 or     | AB        | $18 \times \frac{4}{3} (=24)$ OR<br>$25 + \frac{4}{3} (=18.75)$ OR<br>$18 + '6' (= 24)$ OR<br>$25 - 18 (=7)$ and $0.33.. \times 18 (=6)$ |
|                                 | Valid decision and accurate figure      | 3        | ABC       | No AND 24 OR<br>No AND 18.75 OR<br>No AND 7 and 6  |
| <b>Total marks for question</b> |   | <b>3</b> |           |  |

### Examiner comments

#### 1. 3 marks

A fractional increase question. The learner finds  $\frac{1}{3}$  of 18 and adds this on accurately. All the marks can be awarded. Learners should be encouraged to calculate with fractions and not try to convert to a decimal equivalent. This often leads to  $\frac{1}{3}=0.3$  and then an incorrect answer.

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2 Here is a formula

$$d = \frac{180(n-2)}{n}$$

1 Q02A  
1 Q02B  
0 Q02C

Find the value of  $d$  when  $n = 5$

(3)

$$d = \frac{180(5-2)}{5}$$

$$d = \frac{180 \times 3}{5}$$

$$\begin{array}{r} 180 \\ \times 3 \\ \hline 540 \\ \leftarrow \\ \underline{180} \\ 5 \overline{) 540} \end{array}$$

$$d = 18$$

$d = 18$

(Total for Question 2 is 3 marks) 2

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

| Question                        | Process                           | Mark     | Mark Grid | Evidence   |
|---------------------------------|-----------------------------------|----------|-----------|--|
| Q2                              | Begins to work with formula       | 1 or     | A         | e.g. $180 \times (5 - 2) (=540)$ <b>OR</b><br>$\frac{180(5-2)}{5}$ |
|                                 | Full process to work with formula | 2 or     | AB        | $(5 - 2) \times 180 + 5 (= 108)$                                   |
|                                 | Accurate figure                   | 3        | ABC       | 108  |
| <b>Total marks for question</b> |                                   | <b>3</b> |           |  |

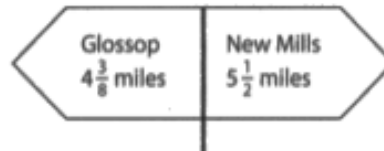
### Examiner comments

#### 2. 2 marks

The substitution is correct. The only error here is the inability to divide 540 by 5 accurately. An answer of 18 is given. This cannot be right, if we have more than 500 to begin with, we know when we divide by 5 the answer should be greater than 100. Learners should sense check answers to calculations as they go.

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- 3 Andrew is a member of a walking club.  
He sees this sign next to a footpath.



0 Q03A  
0 Q03B  
0 Q03C  
0 Q03D

Andrew will walk from this sign along the footpath to Glossop to meet his friend.  
They will then both walk back along the footpath to the sign and then onto  
New Mills.

Work out the total distance that Andrew walks.

Give your answer as a mixed number.  
You **must** show your working.

(4)

$$4\frac{3}{8} \rightarrow 5\frac{1}{2}$$

~~$$5 - 4 = 1 \text{ mile}$$~~

$$\frac{1}{2} - \frac{3}{8}$$

\_\_\_\_\_ miles

(Total for Question 3 is 4 marks) **0**

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

| Question                        | Process  | Mark     | Mark Grid | Evidence   |
|---------------------------------|--|----------|-----------|--|
| Q3                              | Process to multiply fractions  | 1        | A         | e.g. $\frac{3 \times 2}{8} (= \frac{6}{8})$ <b>OR</b><br>$\frac{3+3}{8} (= \frac{6}{8})$ <b>OR</b><br>$0.375 \times 2 (=0.75)$   |
|                                 | Works with common denominator to add two fractions of different denominators | 1        | B         | e.g. $\frac{6}{8} + \frac{1}{2} = \frac{6+4}{8}$ <del>oe</del>   |
|                                 | Full process to add fractions to solve the problem                           | 1 or     | C         | e.g. $4 \frac{3}{8} + 4 \frac{3}{8} + 5 \frac{1}{2} (=14 \frac{2}{8})$ <b>OR</b><br>$\frac{35}{8} + \frac{35}{8} + \frac{44}{8} (= \frac{114}{8})$ <b>OR</b><br>$4.375 + 4.375 + 5.5 (=14.25)$ |
|                                 | Accurate figure given as a mixed number                                      | 2        | CD        | $14 \frac{1}{4}$ oe  |
| <b>Total marks for question</b> |  | <b>4</b> |           |  |

### Examiner comments

#### 3. 0 marks

Instead of adding the distances this learner tries to subtract but at no point do they engage with converting the fraction to a common denominator. Hence no marks can be awarded.

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

- 4 A box contains bags of crisps.  
Each bag of crisps is either beef flavour, prawn flavour or cheese flavour.

Beth is going to take at random a bag of crisps from the box.

The table shows each of the probabilities that the flavour will be beef or will be cheese.

| flavour     | beef | prawn             | cheese |
|-------------|------|-------------------|--------|
| probability | 0.4  | <del>0.1875</del> | 0.35   |

0 Q04A  
0 Q04B  
1 Q04C  
0 Q04D  
1 Q04E  
0 Q04F

- (a) Work out the probability that Beth takes a bag of prawn flavour crisps.

(2)

$$\frac{0.7}{35} \div 4$$

0.195



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

200 workers are asked about the favourite drink they have at work.

Some of the results are shown in the table below.

(b) Complete the two-way table.

(2)

$$\begin{array}{r} 158 \\ 17 \\ \hline 25 \end{array}$$

$$\begin{array}{r} 10 \\ 64 \\ 38 \\ \hline 112 \end{array}$$

$$\begin{array}{r} 27 \\ 46 \\ \hline 73 \end{array}$$

$$\begin{array}{r} 10 \\ 64 \\ \hline 74 \end{array}$$

$$\begin{array}{r} 88 \\ - 25 \\ \hline 63 \end{array}$$

|         |           | Favourite drink |     |        |       |
|---------|-----------|-----------------|-----|--------|-------|
|         |           | water           | tea | coffee | total |
| Workers | office    | 17              | 63  | 8      | 88    |
|         | warehouse | 10              | 64  | 38     | 112   |
|         | total     | 27              | 27  | 46     | 200   |

(c) What is the probability that a worker choosing coffee works in the office?  
Give your answer as a fraction in its simplest form.

(2)

$$\frac{8}{88} \quad \frac{1}{11}$$

$\frac{1}{11}$

2

(Total for Question 4 is 6 marks)

TOTAL FOR SECTION A IS 16 MARKS

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

| Question                        | Process                                  | Mark     | Mark Grid | Evidence   |
|---------------------------------|--|----------|-----------|--|
| Q4(a)                           | Full process to deal with probability    | 1 or     | A         | $1 - 0.4 - 0.35 (=0.25)$   |
|                                 | Accurate figure                          | 2        | AB        | 0.25 <del>08</del>   |
| Q4(b)                           | Begins to complete two-way table         | 1 or     | C         | At least two of<br>17, 127, 38, 63                                     |
|                                 | Fully correct table                      | 2        | CD        | All of<br>17, 127, 38, 63  |
| Q4(c)                           | Begins to work with combined probability | 1 or     | E         | $\frac{8}{a}$ where $a > 8$ <b>OR</b><br>$\frac{b}{46}$ where $b < 46$ |
|                                 | Accurate fraction in its simplest form   | 2        | EF        | $\frac{4}{23}$   |
| <b>Total marks for question</b> |  | <b>6</b> |           |  |

|           | water     | tea        | coffee    | total |
|-----------|-----------|------------|-----------|-------|
| office    | <u>17</u> | <u>63</u>  | 8         | 88    |
| warehouse | 10        | 64         | <u>38</u> | 112   |
| total     | 27        | <u>127</u> | 46        | 200   |

### Examiner comments

#### 4a. 0 marks

There is no clear method shown and the answer although not totally clear is not 0.25 No marks can be awarded.

#### 4b. 1 mark

27 is given instead of 127, in this case a little more care/concentration may have led to the correct answer. This is probably an arithmetic error.

#### 4c. 1 mark

The learner correctly selects and uses 8. However, they should have used 46 not 88. So just one mark can be given.

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SECTION B

1 Q01A  
1 Q01B  
1 Q01C

Answer ALL questions. Write your answers in the spaces provided.

- 1 Olivia plans to drive from Birmingham to Manchester non-stop.

The distance is 87 miles.

She has allowed 1.5 hours for the journey.

- (a) What is the average speed she must drive to complete the journey in 1.5 hours?

(2)

$$87 \div 1.5 = 58$$

58 ~~miles~~ mph



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

(1)

$$58 \times 1.5 = 87$$

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

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

| PMAT2/C06                |                                    |      |           |                           |
|--------------------------|------------------------------------|------|-----------|---------------------------|
| Question                 | Process                            | Mark | Mark Grid | Evidence                  |
| Q1(a)                    | Full process to find speed         | 1 or | A         | $87 \div 1.5 (= 58)$      |
|                          | Accurate figure                    | 2    | AB        | 58                        |
| Q1(b)                    | Valid check by reverse calculation | 1    | C         | e.g. $58 \times 1.5 = 87$ |
| Total marks for question |                                    | 3    |           |                           |

### Examiner comments

#### 1a. 2 marks

A fully correct answer testing knowledge of speed, distance and time.

#### 1b. 1 mark

A clear reverse calculation is shown for the check.

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2 Brian is a sports reporter.

Team A played 30 rugby matches.

The table shows information about the number of tries team A scored in these matches.

| number of tries | number of matches |    |
|-----------------|-------------------|----|
| 0               | 3                 | 0  |
| 1               | 7                 | 7  |
| 2               | 11                | 22 |
| 3               | 9                 | 27 |
| <b>total</b>    | 30                | 56 |

1 Q02A  
1 Q02B  
1 Q02C

(a) Work out the mean number of tries team A scored per match.

(2)

1.86

tries

Brian wants to compare two teams.  
He knows

- team A had a range of 3 tries
- team B had a range of 4 tries.

(b) Which team is more consistent scoring tries?  
Explain why you think this.

(1)

Team A with range of 3 tries. less score.

(Total for Question 2 is 3 marks) **3**

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

| Question                        | Process  | Mark     | Mark Grid | Evidence   |
|---------------------------------|--|----------|-----------|--|
| Q2(a)                           | Complete process to find mean number of tries for team A | 1 or     | A         | $(0 \times 3) + (1 \times 7) + (2 \times 11) + (3 \times 9) + 30 (=1.8)$ <b>OR</b><br>$56 + 30 (=1.8)$<br>Allow one product error for mark A |
|                                 | Accurate figure  | 2        | AB        | 1.8(6...)  |
| Q2(b)                           | Selects team A and gives a reason                        | 1        | C         | e.g. (team) A <b>AND</b> the range is lower for team A   |
| <b>Total marks for question</b> |  | <b>3</b> |           |  |

### Examiner comments

#### 2a. 2 marks

The table is used to show the products required as working. The last step to find the mean is not shown but the answer is correct so this step can be implied. Both marks can be awarded.

#### 2b. 1 mark

A correct statement to compare the ranges and as such compare consistency is seen.

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3 The head teacher at a school is organising for some year 7 and some year 8 pupils to go on a school trip.  
72 people in total will go on the school trip.

There will be 1 adult to every 5 pupils.

The ratio of the number of year 7 pupils to the number of year 8 pupils will be 3 : 1

How many adults, year 7 pupils and year 8 pupils will go on the trip? (4)

Handwritten work:

$$72 \text{ total} : 72 \div 4 = 18$$

$$18 \times 3 = 54$$

$$72 \div 5 = 14.4$$

Input boxes:

|    |               |
|----|---------------|
| 15 | adults        |
| 54 | year 7 pupils |
| 18 | year 8 pupils |

(Total for Question 3 is 4 marks) **0**

0 Q03A  
0 Q03B  
0 Q03C  
0 Q03D

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

| Question                        | Process                               | Mark     | Mark Grid | Evidence  |
|---------------------------------|---------------------------------------|----------|-----------|---|
| Q3                              | Begins to work with ratio             | 1 or     | A         | $72 + (1 + 5) (=12)$  |
|                                 | Develops solution                     | 2 or     | AB        | $5 \times '12' + (1 + 3) (=15)$ <del>ge</del>   |
|                                 | Full process to work with both ratios | 3 or     | ABC       | '15' $\times 3 (=45)$ <b>OR</b><br>2 from 12 adults, 45 year 7 <b>or</b> 15 year 8 <b>OR</b><br>All of 12, 45 <b>and</b> 15 |
|                                 | Accurate figures allocated correctly  | 4        | ABCD      | 12 adults <b>AND</b> 45 year 7 <b>AND</b> 15 year 8   |
| <b>Total marks for question</b> |                                       | <b>4</b> |           |   |

### Examiner comments

#### 3. 0 marks

This learner does not engage with the 1 adult to 5 pupils' part of the question and so cannot receive any marks.



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

1 Q04A  
1 Q04B  
1 Q04C

**4** Josh drives a lorry.  
He is planning his route.

On the planned route there is a low bridge.  
The maximum height of a lorry allowed under the bridge is 14 feet.

Josh knows the lorry is 4.2 m high.

Josh uses 1 foot = 0.3048 m.

(a) Will the lorry be allowed under the bridge?  
Show why you think this. (2)

4.2 m high

~~14 × 0.3048~~

$14 \times 0.3048 = 4.2672$

yes

4.2672 yes

(b) Use a reverse calculation to show a check of your answer. (1)

$4.2672 \div 14 = 0.3048$

(Total for Question 4 is 3 marks) 3

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

| Question                        | Process                              | Mark     | Mark Grid | Evidence  |
|---------------------------------|--------------------------------------|----------|-----------|---|
| Q4(a)                           | Begins to work with conversion       | 1 or     | A         | $14 \times 0.3048 (=4.2672)$ <b>OR</b><br>$4.2 \div 0.3048 (=13.779..)$ |
|                                 | Valid decision with accurate figures | 2        | AB        | Yes <b>AND</b> 4.26(7) <b>OR</b><br>Yes <b>AND</b> 13(.779..)           |
| Q4(b)                           | Valid check by reverse calculation.  | 1        | C         | e.g. $4.26 \div 0.3048 = 14$ <b>or</b> $13.7 \times 0.3048 = 4.2$       |
| <b>Total marks for question</b> |                                      | <b>3</b> |           |   |

### Examiner comments

#### 4a. 2 marks

A correct conversion is given. The answer is accurate, and the decision given.

#### 4b. 1 mark

An accurate reverse calculation, with answer, is given.

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

|   |   |
|---|---|
| <p><b>5</b> Yasmine invests £4000</p> <p>For the first 2 years she receives annual compound interest of 3%<br/>         In year three she receives annual compound interest of 2.5%</p> <p>At the end of year three Yasmine wants to buy a car for £4500</p> <p>She will use all of the investment and interest towards the cost of the car.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>Work out how much more money Yasmine needs to buy the car.<br/>           You <b>must</b> show your working</p> <p style="text-align: right;">(5)</p> <p style="margin-top: 20px;">4000 for 2 year</p> <p style="margin-top: 10px;"><math>1.03^2 \times 4000 = 4,243.60</math></p> <p style="margin-top: 10px;">4000 for third year</p> <p style="margin-top: 10px;"><math>\frac{2.5}{100} \times 4000 = 100</math></p> <div style="margin-top: 20px; text-align: right;"> <math display="block">\begin{array}{r} 4,243.60 \\ + \quad 100 \\ \hline 4,343.60 \end{array}</math> </div> </div> | <p>1 Q05A</p> <p>1 Q05B</p> <p>0 Q05C</p> <p>0 Q05D</p> <p>0 Q05E</p> |
|---|---|

£ 4,343.60

(Total for Question 5 is 5 marks) 2

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

| Question                        | Process  | Mark     | Mark Grid | Evidence  |
|---------------------------------|--|----------|-----------|---|
| Q5                              | Begins to work with compound interest                          | 1 or     | A         | $4000 \times 1.03 (= 4120)$ OR<br>$1.03^2 (= 1.0609)$ |
|                                 | Full process to work with compound interest for 2 years        | 2        | AB        | $4000 \times 1.03^2 (= 4243.6)$                       |
|                                 | Full process to find the value of the investment after 3 years | 1 or     | C         | $'4243.6' \times 1.025 (= 4349.69)$                   |
|                                 | Full process to find the outstanding amount                    | 2 or     | CD        | $4500 - '4349.69' (= 150.31)$                         |
|                                 | Accurate figure  | 3        | CDE       | 150.31  |
| <b>Total marks for question</b> |  | <b>5</b> |           |   |

### Examiner comments

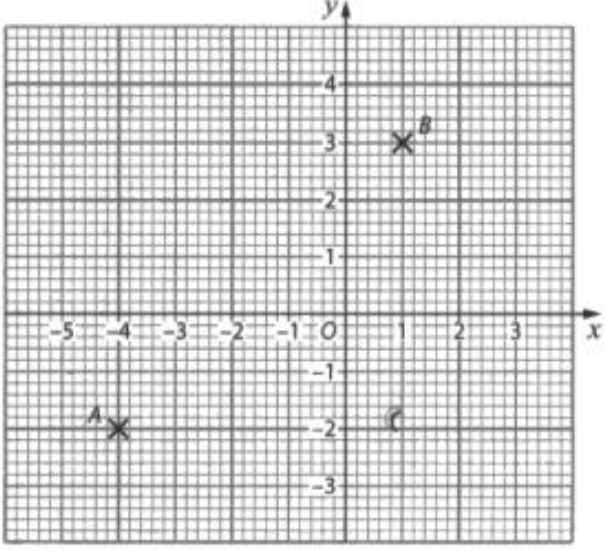
#### 5. 2 marks

Marks A and B can be awarded for the first line here. It is a full process to work with compound interest for 2 years. The learner then uses 2.5% with 4000 and does not use a compound method, hence no more marks can be awarded. The distinction between simple and compound interest is a level 1/level 2 discriminator.

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

1 Q06A  
1 Q06B  
1 Q06C

6



(a) Write down the coordinates of point A. (1)

$(-4, -2)$

(b) Mark with a cross the point C on the grid so that angle ACB is a right angle. (1)

(c) Write down the sum of the interior angles of a triangle. (1)

$180^\circ$

**3**  
(Total for Question 6 is 3 marks)

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

| Question                        | Process                            | Mark     | Mark Grid | Evidence                        |
|---------------------------------|------------------------------------|----------|-----------|---------------------------------|
| Q6(a)                           | Accurate coordinates               | 1        | A         | $(-4, -2)$                      |
| Q6(b)                           | Plot a point to form a right angle | 1        | B         | Point at $(-4, 3)$ or $(1, -2)$ |
| Q6(c)                           | Accurate value                     | 1        | C         | 180                             |
| <b>Total marks for question</b> |                                    | <b>3</b> |           |                                 |

### Examiner comments

#### 6a. 1 mark

Correct coordinates given.

#### 6b. 1 mark

The letter C is within tolerance of the required point. The use of 'x' when plotting points is better and should be encouraged.

#### 6c. 1 mark

Correct answer stated.

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7 Carlos records the number of tweets his company posts every year on social media.

| year             | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|------------------|------|------|------|------|------|------|
| number of tweets | 452  | 325  | 744  | 1022 | 712  | 750  |

(a) Find the median number of tweets.

(2)

$$325, 452, 712, 744, 750, 1022$$

$$\begin{array}{r} 712 \\ + 744 \\ \hline 1456 \end{array} \div 2$$

728

In 2019, 6% of the tweets were about job vacancies.

(b) How many of the tweets in 2019 were about job vacancies?

(2)

$$\frac{6}{100} \times 750$$

45

(Total for Question 7 is 4 marks) 4

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

| Question                        | Process                         | Mark     | Mark Grid | Evidence   |
|---------------------------------|---------------------------------|----------|-----------|--|
| Q7(a)                           | Full process to find the median | 1 or     | A         | $(712 + 744) \div 2 (=728)$                        |
|                                 | Accurate figure                 | 2        | AB        | 728  |
| Q7(b)                           | Full process to find 6%         | 1 or     | C         | e.g. $'750' \times 6 \div 100 (=45)$ <del>98</del> |
|                                 | Accurate figure                 | 2        | CD        | 45   |
| <b>Total marks for question</b> |                                 | <b>4</b> |           |  |

### Examiner comments

#### 7a. 2 marks

The median is found accurately with working shown.

#### 7b. 2 marks

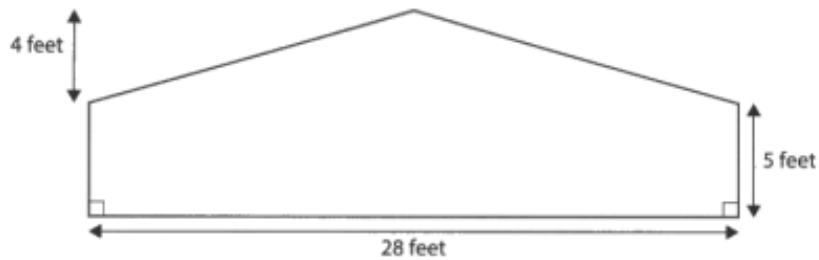
750 is extracted from the table and the calculation to find 6% of this value is performed accurately. Both marks can be awarded.



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

- B** Myra works as a volunteer at her local pony club.  
She is going to cover the front of the stables with paint.

The diagram shows a sketch of the front of the stables.



Myra will buy the paint she needs.

1 tin of paint

- covers  $7\text{ m}^2$
- costs £6.45

She uses this rule.

Area in square feet  $\div 10.764 =$  area in square metres.

Work out the total cost of the tins of paint Myra will buy

(6)

$$28 \times 5 = \frac{140}{2} = 70$$

$$70 \times 4 = 280$$

$$280 \div 7 = 40 \text{ paint tins}$$

$$40 \times 6.45 = 258.00$$

£ 258.00

(Total for Question 8 is 6 marks) **1**

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

| Question                        | Process   | Mark     | Mark Grid | Evidence  |
|---------------------------------|---|----------|-----------|---|
| Q8                              | Begins to work with area  | 1 or     | A         | e.g. $28 \times 5 (=140)$ <b>OR</b><br>$(28 \times 4) + 2 (=56)$  |
|                                 | Complete process to find the area of the front of the stable before or after conversion.                          | 2        | AB        | e.g. $(140 + 56) (=196)$ (square feet)  |
|                                 | Converts an area from square feet to square meters  | 1        | C         | e.g. $196 \div 10.764 (=18.208...)$ (square metres)   |
|                                 | Process to work with number of tins   | 1 or     | D         | $18.208 \div 7 (=2.6...litres)$ <b>OR</b><br>{area in sq metres} $\div 7$ <b>OR</b><br>$7 \times 3 (=21)$ <b>and</b> $18.208$ |
|                                 | Process to calculate the cost using the exact number of tins or accurate figure using an unrounded number of tins | 2 or     | DE        | $3 \times 6.45 (=19.35)$<br>$3$ must come from rounding up their number of tins <b>OR</b><br>e.g. $2.6 \times 6.45 = 16.77$   |
|                                 | Accurate figure (to 2dp)  | 3        | DEF       | 19.35   |
| <b>Total marks for question</b> |   | <b>6</b> |           |   |

### Examiner comments

#### 8. 1 mark

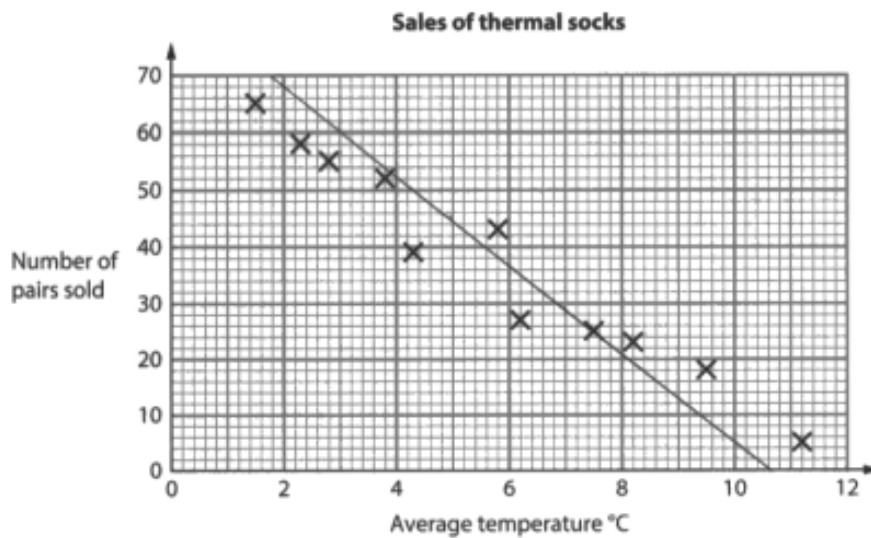
The first calculation  $28 \times 5$  is 'beginning to work with area', so the A mark can be awarded. The learner then does not calculate the area correctly. There is a need for learners to know how to work out the area of a triangle without being given a formula. There is no attempt to use the given rule. The division by 7 is not on a metric area and so is not worthy of any marks. On the mark scheme the use of  $3 \times 6.45$  means that the 3 must come from a correct process. 40 is used here instead of 3 and is not from a correct process so no more marks can be awarded.

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9 Leona works in a sock shop.

The scatter diagram shows the number of pairs of thermal socks sold and the average temperature that month.

1 Q09A  
1 Q09B  
0 Q09C



(a) Draw a line of best fit onto the scatter diagram.

(1)

(b) Describe the correlation between the number of pairs of thermal socks sold and the temperature.

(1)

Negative Correlation

Next month the predicted average temperature is 5°C  
Leona needs to estimate how many pairs of thermal socks she will sell.

(c) Estimate the number of pairs of thermal socks she will sell next month.

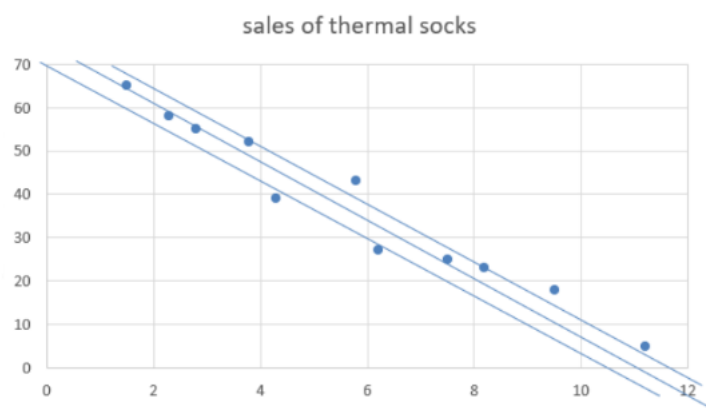
(1)

28 Socks

(Total for Question 9 is 3 marks) **2**

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

| Question                        | Process                  | Mark     | Mark Grid | Evidence   |
|---------------------------------|--------------------------|----------|-----------|--|
| Q9(a)                           | Draws a line of best fit | 1        | A         | line of best fit drawn   |
| Q9(b)                           | Describes correlation    | 1        | B         | Negative correlation <b>OR</b><br>e.g. the higher the temperature the fewer thermal socks sold |
| Q9(c)                           | Estimates value          | 1        | C         | [35,45] (range to be finalised after typeset)  |
| <b>Total marks for question</b> |                          | <b>3</b> |           |  |



### Examiner comments

9a. **1 mark**

This line is within the tolerance allowed.

9b. **1 mark**

Negative is enough for this mark as it describes the correlation.

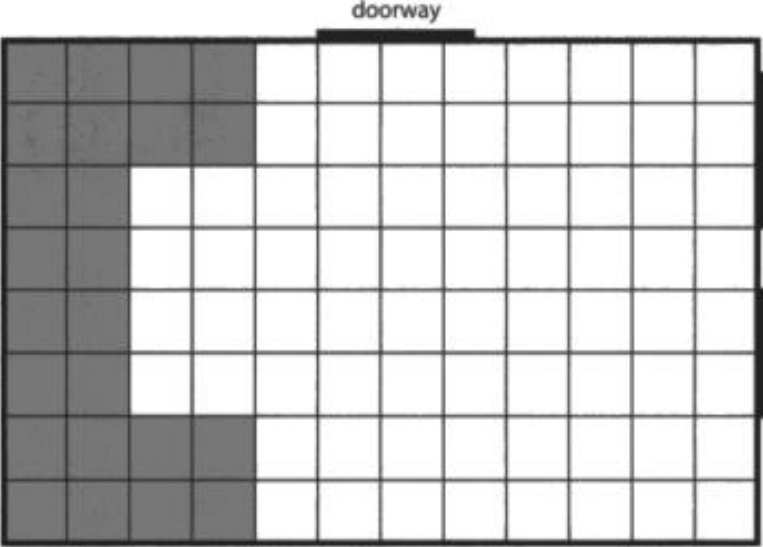
9c. **0 marks**

28 is not correct, it is too low.

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

0 Q10A  
0 Q10B  
0 Q10C

**10** Chris has moved to a new flat.  
The grid shows a plan of the kitchen.





doorway

doorway

window

**Key**

 walls  
 cupboards

1 square length on the grid represents 0.3 m in the kitchen

Chris needs to put a fridge and a table in the kitchen.

The fridge will need a rectangular space 90 cm by 60 cm with the longest side against a wall but not against a window.

The table will need a rectangular space 60 cm by 75 cm and to be at least 60 cm away from the doorways, the cupboards, the fridge and not against a wall.

Draw the space for the fridge and the space for the table on the grid for Chris.  
Remember to label the items.

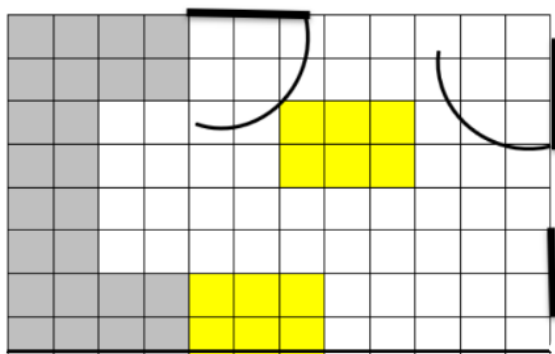
(3)

**0**

(Total for Question 10 is 3 marks)

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

| Question                        | Process  | Mark     | Mark Grid | Evidence  |
|---------------------------------|--|----------|-----------|---|
| Q10                             | Begins to work with scale                                | 1 or     | A         | e.g. Draws a rectangle<br>2 squares by 3 squares <b>OR</b> 2 squares by 2.5 squares   |
|                                 | Correct position and space for fridge or table           | 2 or     | AB        | Either rectangle with all correct <ul style="list-style-type: none"> <li>• 2 squares by 3 squares, longest side against a wall, not covering the door or the window <b>OR</b></li> <li>• 2 squares by 2.5 squares, at least 2 squares from all other items and not against the wall</li> </ul>            |
|                                 | Correct position and space for fridge and table labelled | 3        | ABC       | Both rectangles fully correct and labelled. <ul style="list-style-type: none"> <li>• 2 squares by 3 squares, longest side against a wall, not covering the door or the window <b>AND</b></li> <li>• 2 squares by 2.5 squares, at least 2 squares from all other items and not against the wall</li> </ul> |
| <b>Total marks for question</b> |  | <b>3</b> |           |   |



Note table in the middle should be 2 squares by 2.5 squares.

### Examiner comments

10. 0 marks

No attempt at this question is seen. The use of scale drawings is often set and practice at drawing different lengths using scale may help learners develop the skills required for this type of question.

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

11 Nigel is the secretary of a football club.

He pays three match officials each week.

He has this information for the payments he made for the last 5 weeks.

| Week             | 1     | 2     | 3     | 4     | 5     |
|------------------|-------|-------|-------|-------|-------|
| Payment made (£) | 62.94 | 47.12 | 92.37 | 74.80 | 81.45 |

The table shows the match fees and expenses the officials will receive in week 6

| official    | fee | expenses                 |
|-------------|-----|--------------------------|
| referee     | £36 | 46 miles at 30p per mile |
| assistant 1 | £27 | 14 miles at 30p per mile |
| assistant 2 | £27 | 23 miles at 30p per mile |

The total payment for each official is made up of a match fee and expenses.  
Nigel pays 67% of the total payments for these three match officials.

Nigel thinks the payment he makes in week 6 is more than the median payment he made for the previous 5 weeks.

Is Nigel correct?  
Show why you think this.

(5)

Median for 5 weeks:

47.12, 62.94, 74.80, 81.45, 92.37

median = 74.80

$$36 + 10.20 + 13.80 = 49.80$$

$$27 + 4.20 = 31.20$$

$$27 + 6.90 = 33.90$$

$$\begin{array}{r} 33.90 \\ \hline 114.90 \end{array}$$

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

Yes he is correct.

£114.90

(Total for Question 11 is 5 marks) **3**



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

| Question                        | Process   | Mark     | Mark Grid | Evidence   |
|---------------------------------|---|----------|-----------|--|
| Q11                             | Process to find median value  | 1        | A         | Selects or indicates 74.80   |
|                                 | Begins to work with expenses or match fees                                      | 1 or     | B         | e.g. $(46 \times 0.3) + (23 \times 0.3) + (14 \times 0.3) (=24.9)$ <b>OR</b><br>$(46 \times 0.3) + 36 (=49.8)$ <b>or</b> $(14 \times 0.3) + 27 (= 31.2)$ <b>or</b><br>$(23 \times 0.3) + 27 (=33.9)$ <b>OR</b><br>$36 + 27 + 27 (=90)$ |
|                                 | Complete process to find total payment of fees and expenses for all 3 officials | 2        | BC        | $(46 \times 0.3) + (23 \times 0.3) + (14 \times 0.3) + '90' (=114.9)$ <b>OR</b><br>$'49.8' + '31.2' + '33.9' (=114.9)$   |
|                                 | Process to find 67% of total expenses or any relevant cost                      | 1 or     | D         | e.g. $0.67 \times '114.9' (=76.983)$ <b>og</b>   |
|                                 | Valid decision with accurate figures  | 2        | DE        | Yes <b>AND</b> 74.8 <b>and</b> 76.98(3)  |
| <b>Total marks for question</b> |   | <b>5</b> |           |  |

### Examiner comments

#### 11. 3 marks

This is the three linked question. We are required to set (at least) one question on each level 2 paper that uses all the three areas of the specification. This is usually a 5 or 6 mark question.

Mark A is awarded for the median.

Marks B and C are awarded for working with all the officials and their total fees.

There is no attempt to work with the 67% given in the question and so no more marks can be awarded.

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

12 Tammy wants to make chocolate sweets.

The sweets will be solid chocolate in the shape of a sphere.  
Each sweet will have a radius of 2 cm.

Tammy will melt chocolate blocks to make the sweets.  
Each chocolate block is a cuboid 19 cm by 14 cm by 0.75 cm.

She has this formula

$$\text{Volume of a sphere} = \frac{4}{3} \pi r^3$$

where  $r$  = radius  
 $\pi = 3.14$

Tammy wants to make 45 sweets.  
She thinks 7 blocks of chocolate are enough to make 45 sweets.

Is Tammy correct?  
Show why you think this.

(6)

 Radius = 2 cm

$$\text{Chocolate cuboid} = 19 \times 14 \times 0.75$$

$$= 199.5$$

$$\text{Volume of a sphere} = \frac{4}{3} \pi r^3$$

$$r^3 = 2^3 = 8$$

$$\pi \times 8 = 25.136$$

$$\frac{4}{3} \times 25.136 = 33.515$$

$$199.5 \times 7 = 1396.5$$

$$1396.5 \div 33.515 = 41.67$$

$$= 42$$

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

NO  
Tomy can only make 31 sweets

31 sweets.

(Total for Question 12 is 6 marks) **6**

**TOTAL FOR SECTION B IS 48 MARKS**  
**TOTAL FOR PAPER IS 64 MARKS**

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

| Question                        | Process  | Mark     | Mark Grid | Evidence   |
|---------------------------------|--|----------|-----------|--|
| Q12                             | Begins to work with formula                    | 1 or     | A         | e.g. $4 + 3 \times 3.14 (=4.18..)$ <b>OR</b><br>$2^3 (=8)$   |
|                                 | Full process to work with formula              | 2        | AB        | $4 + 3 \times 3.14 \times 2^3 (=33.493...)$ <del>or</del>  |
|                                 | Full process to find volume of chocolate block | 1        | C         | $19 \times 14 \times 0.75 (=199.5)$  |
|                                 | Process to find volume required                | 1 or     | D         | '33.493..' $\times 45 (=1507.2)$ <b>OR</b><br>'199.5' $\times 7 (= 1396.5)$  |
|                                 | Full process to find figures to compare        | 2 or     | DE        | '1507.2' + '199.5' ( $=7.55..$ ) <b>OR</b><br>'33.493..' $\times 45 (=1507.2)$ <b>and</b> '199.5' $\times 7 (= 1396.5)$ <b>OR</b><br>'1396.5' + 45 ( $=31.03..$ )  |
|                                 | Valid decision with accurate figures           | 3        | DEF       | No <b>AND</b> 7.5( <u>5..</u> ) <b>OR</b><br>No <b>AND</b> 1507(.2) <b>and</b> 1396(.5) <b>OR</b><br>No <b>AND</b> 33( <u>.49..</u> ) <b>and</b> 31(.03..)<br>Nb May state 8 blocks required award mark if 7.55 is seen in working |
| <b>Total marks for question</b> |  | <b>6</b> |           |  |

### Examiner comments

#### 12. 6 marks

The volume of the cuboid is calculated first. This allows the C mark to be awarded. The formula is then used in stages and all the stages together are a full process so marks A and B can be awarded.

The volume of the cuboid is then used with 7 and 45 to work out how much chocolate is available per sphere. There are now two figures which can be compared. Accuracy to 33 and 31 is the requirement here. The decision is given on the next page as no.

The sentence after is not quite the correct interpretation but as this is not a requirement of the question it has been condoned.

It is also worth noting that  $199.5 \times 7$  is 1396.5 and the figure written is 1.396.5, we do often see a decimal point used instead of a comma and as long as this is consistent and non-contradictory we accept this notation.

***Total marks learner has achieved for the whole paper is 37 marks.  
The threshold pass mark for this retired set was 36 marks.***

