Functional Skills Mathematics Level 2 assessment

Marking scheme

www.cityandguilds.com
December 2017
Version 1

V1

SAMPLE 4

Question	Mark	Represent	Analyse	Interpret	Open	Fixed
1A	2	2	0	0	2	0
1B	2	1	1	0	2	0
1C	8	2	3	3	8	0
1D	2	1	1	0	2	0
1E	3	1	2	0	3	0
1F	4	0	0	4	4	0
1G	1	0	0	1	1	0
1H	3	0	0	3	3	0
2A	3	2	1	0	3	0
2B	2	1	1	0	2	0
2C	4	1	3	0	4	0
2D	3	1	0	2	3	0
2E	7	4	3	0	7	0
2F	3	1	2	0	3	0
2G	3	0	0	3	3	0
3A	4	1	2	1	4	0
3B	2	0	2	0	0	2
3C	3	0	0	3	3	0
3D	3	1	1	1	3	0
3E	2	0	0	2	2	0
3F	4	2	2	0	4	0
3G	2	1	1	0	2	0
3H	3	3	0	0	3	0
3I	2	1	1	0	2	0
	75	26	26	23	73	2
		35%	35%	31%	97%	3%

Task 1 – Office accounts			
Question	**Total marks**	**Marks**	**Marks awarded for**
1A	**2**	**1**	**(£)132.60**
		1	**(£)200** **accept (£)193.26**
1B	**2**	**2**	**(£)60 OR (£)70** **OR value rounded to the nearest (£)10 for their amount that the manager thinks is left – their money left to spend in December**
		1	unrounded value for their amount that the manager thinks is left – their money left to spend in December eg (£)67.40 **or** (£)60.66
1C	**8**	*evidence for checking invoices*	
		1	**invoice 27294 marking the first two rows to show that prices, costs and totals are correct, eg using one tick per row**
		1	**invoice 27294 marking incorrect price (£2.99) or incorrect cost (£149.50) for pads of paper eg using a cross against either**
		1	**invoice 27326 marking both rows AND the totals group to show that prices, costs and totals are correct, eg using one tick per row**
		identifying error invoice 27294	
		5	**(£)179.76 for correct total of invoice**
		4	(£)29.96 seen for VAT **or** complete correct method with one calculation error **or** correct total for invoice using incorrect unit price
		3	(£)149.80 seen for goods total
		2	(£)92.50 seen for total for pads **or** value for 20% of their goods total **or** correct method for finding 20%
		1	(£)1.85 seen for correct unit cost
1D	**2** **no marks for repeat calc**	**2**	**a complete correct check of any original calculation seen in 1C using a different method** **eg a reverse calculation OR a calculation using approximate values** **original calculation must be seen**
		1	a complete check which is not finished **or** method for reverse calculation
1E	**3**	**3**	**(£)201 or correct value for amount left using their values for the three invoices**
		2	(£)68.40 or the difference in total costs of their invoices **or** (£)292.26 or the total of their invoices **or** (£)232.50 for using only the last two invoices **or** complete correct method for finding the amount left with one calculation error
		1	(£)493.26 seen **or** (£)132.60 seen

1F	**4**	**1**	**table structure with rows and columns, some suitable headings and appropriate delineation**
		1	**headings / labels for at least invoice ID (number or date), total/spreadsheet amounts, and amount left**
		2	**all of their data entered for at least invoice costs, total for all invoices or spreadsheet amounts, and their amount left to spend in December**
		1	some of their data entered for at least two of the above
1G	**1**	**1**	**yes and valid explanation consistent with their results including reference to values and/or invoice error and/or explicit comparison** **eg 'yes (manager is right) because amount left is about (£)200.'** **eg 'yes, there was an error on invoice 27294 which meant they were charged (about £60) too much.'** **eg 'yes, because the correct amount left over was more than the spreadsheet said.'**
1H	**3**	**3**	**three comments specific to the candidates work AND relevant to one or more review prompts** **ie other information; sensible answers; methods; difficulty; things to do differently** **Note: do not accept generic statements**

some acceptable comments	**some unacceptable comments**
eg I would have liked to have had a simpler spreadsheet (with just the information I needed).	**eg I don't need any more information.**
eg My answers are sensible because they agree with the manager.	**eg My answers are sensible. (ie no specific references to task)**
eg Ticking and crossing the invoices helped me solve the problem.	**eg My methods were good. (ie no specific references to task)**
eg I found the spreadsheet difficult to understand.	**eg I found 1B difficult. (ie no specific references to task)**
eg I could have found the difference in price (instead of using the total amount).	**eg I would do nothing differently. (ie no specific references to task)**

		2	two comments
		1	one comment
			Total for Task 1 = 25 marks

Example table for 1F

Nov invoice	Cost (£)	Difference (£)
27219	31.50	0.00
27294	179.76	68.40
27326	81.00	0.00
Spreadsheet (Nov)	132.60	68.40
Amount left to spend (Dec)		201.00

<table>
<tr><th colspan="4">Task 2 – New restaurant</th></tr>
<tr><th>Question</th><th>Total marks</th><th>Marks</th><th>Marks awarded for</th></tr>
<tr><td rowspan="3">2A</td><td rowspan="3">3</td><td>3</td><td>all dimensions correct
<table>
<tr><th>Side</th><th>Length (metres)</th></tr>
<tr><td>A</td><td>16(m)</td></tr>
<tr><td>B</td><td>15(m)</td></tr>
<tr><td>C</td><td>8.4(m)</td></tr>
<tr><td>D</td><td>6(m)</td></tr>
<tr><td>E</td><td>7.6(m)</td></tr>
<tr><td>F</td><td>9(m)</td></tr>
</table></td></tr>
<tr><td>2</td><td>5 dimensions correct</td></tr>
<tr><td>1</td><td>2 dimensions correct</td></tr>
<tr><td rowspan="2">2B</td><td rowspan="2">2</td><td>2</td><td>correct explanation of scale used in 2A with reference to scale AND length of scaled line AND actual length
eg 2cm = 2m AND 6cm = 6m
eg 1 square = 1m AND 6 squares = 6m
eg scale 1:100 AND 6 x 100 = 600cm = 6m</td></tr>
<tr><td>1</td><td>incomplete explanation of scale used
eg 2cm = 2m for reference to scale only
eg 6cm = 6m for reference to actual and scaled measurements only</td></tr>
<tr><td rowspan="4">2C</td><td rowspan="4">4</td><td>4</td><td>all three areas correct for bar 18(m²), open kitchen 15(m²), restaurant seating section 179.4(m²)
follow through 2A</td></tr>
<tr><td>3</td><td>179.4(m^2) seen for restaurant seating section area</td></tr>
<tr><td>2</td><td>18(m^2) and 15(m^2) seen for bar and open kitchen areas</td></tr>
<tr><td>1</td><td>18(m^2) or 15(m^2) seen for bar or open kitchen area</td></tr>
<tr><td rowspan="3">2D</td><td rowspan="3">3</td><td>2</td><td>correct value seen for number of seats eg 32.<u>28</u> <u>URT</u>
OR 13.<u>94</u>m^2 <u>URT</u> for area needed for 30 seats
OR 4.2<u>89</u>sqft <u>URT</u> for square feet needed per seat
follow through 2C</td></tr>
<tr><td>1</td><td>part solution for calculating any of the above
eg 161.4sqft for open kitchen area
eg 10.76 ÷ 5 for space needed per seat
eg 150sqft needed for 30 seats</td></tr>
<tr><td>1</td><td>decision AND explanation consistent with their figures
eg 32 seats is greater than 30
eg 13.94m^2 is less than 15m^2
eg 4.289sqft is less than 5sqft</td></tr>
<tr><td rowspan="4">2E</td><td rowspan="4">7</td><td>5</td><td>correct values for number of tiles
eg 132 grey AND 1056 white AND 528 black
follow through 2C</td></tr>
<tr><td>4</td><td>two correct values seen for number of tiles
or complete correct method with one calculation or rounding error</td></tr>
<tr><td>3</td><td>one correct value seen for number of tiles
or 132 seen (number of patterns)</td></tr>
<tr><td>2</td><td>x 4 seen
or ÷ 0.25(m^2) seen</td></tr>
</table>

		1	total area of bar and open kitchen eg 33(m^2) seen **or** 0.5m seen for conversion of pattern sides
		2	**correct values for cost of their number of tiles eg (£)444.84 AND (£)982.08 AND (£)491.04**
		1	one correct value
2F	**3**	**3**	**(£)3313.98 *follow through 2C***
		2	(£)3311.70 **or** (£)3311.71 seen for unrounded packs
		1	their area ÷ 1.76m^2 seen or 101.93 seen
2G	**3**	**2**	**all their data entered correctly with Items, Quantity and Cost**
		1	one line completed correctly
		1	**correct value for total cost for their item costs**
			Total for Task 2 = 25 marks

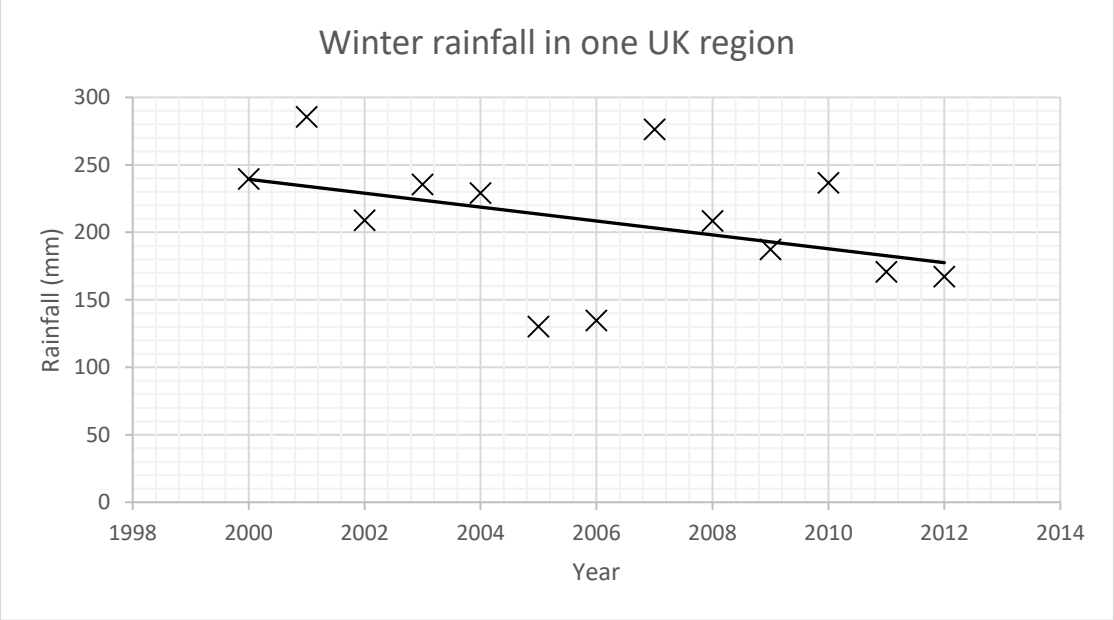
Example order form for 2G

FLOORING NATION – ORDER FORM		
Item	**Quantity**	**Cost (£)**
Grey tiles	**132**	**444.84**
White tiles	**1056**	**982.08**
Black tiles	**528**	**491.04**
Wooden flooring	**102**	**3313.98**
	Total	**5231.94**

Task 3 – Water shortages			
Question	**Total marks**	**Marks**	**Marks awarded for**
3A	**4**	**3**	**average correct corresponding with average selected** **Mean 215.6** **Median 229** **NB there is no modal value**
		2	complete correct method and value for average if no choice indicated or incorrect choice. e.g. 2371.6 ÷ 11 = 215.6 (i.e. mean) for incorrectly stated median
		1	correct method seen e.g. ÷11 seen for mean or an attempt to order data to find middle values
		1	**suitable explanation for choice of average** **e.g. mean- considers all the data** **e.g. median- excludes extreme values**
3B	**2**	**2**	**2011: 170.6 (mm) AND 2012: 167.2 (mm)**
		1	170.6(mm) OR 167.2(mm) seen
3C	**3**	**2**	**both points plotted correctly ± ½ small square** ***follow through 3B***
		1	one point plotted correctly ± ½ small square
		1	**trend line (line of best fit) drawn for given data showing negative correlation with approximately equal plots either side of the trend line**
3D	**3**	**2**	**155.2 (mm)**
		1	285.4 AND 130.2 seen
		1	**explanation with reference to variation, consistency of data or equivalent** **eg range shows the amount of rainfall varied a lot**
3E	**2**	**1**	**valid comment about the average** **eg there was less rainfall in 2011 and 2012 (than the long-term average)**
		1	**valid comment about the trend line** **eg the trend line shows (consistency with trend) that the amount of rainfall is decreasing**
3F	**4**	**4**	**percentage values correct to one dp using their results from 3A and 3B** **eg 22.4(%) using mean value OR 26.9(%) using median value** ***follow through 3A and 3B***
		3	22.*44897959*(%) URT **or** 26.*98689956*(%) URT
		2	all values correctly substituted into the formula eg $\frac{167.2-215.6}{215.6}\ x100$
		1	at least one rainfall value correctly substituted into the formula
3G	**2**	**2** **no marks for repeat calc**	**a complete correct check of any original calculation seen in 3F using a different method** **eg a reverse calculation OR a calculation using approximate values** **original calculation must be seen**
		1	a correct check, which is not finished

<table>
<tr><td rowspan="7">3H</td><td rowspan="7">3</td><td>3</td><td>table to be completed as follows:
<table>
<tr><th>From – To</th><th>Target met? Y/N</th></tr>
<tr><td>2010 – 2011</td><td>N</td></tr>
<tr><td>2011 – 2012</td><td>Y</td></tr>
<tr><td>2012 – 2013</td><td>N</td></tr>
<tr><td>2013 – 2014</td><td>N</td></tr>
<tr><td>2014 – 2015</td><td>Y</td></tr>
<tr><td>2015 – 2016</td><td>N</td></tr>
</table></td></tr>
<tr><td>2</td><td>table completed with one error</td></tr>
<tr><td>1</td><td>table completed with two errors</td></tr>
<tr><td rowspan="2">3I</td><td rowspan="2">2</td><td>2</td><td>1/3 (allow follow through from 3H)</td></tr>
<tr><td>1</td><td>6 seen as denominator</td></tr>
<tr><td colspan="4">Total for Task 3 = 25 marks</td></tr>
</table>

3C Plots and trend line



Level 2 Sample paper 4			
Coverage and Range (Technical Skills)	**Task 1**	**Task 2**	**Task 3**
C2.1 Understand and use positive and negative numbers of any size in practical contexts	✓	✓	✓
C2.2 carry out calculations with numbers of any size in practical contexts, to a given number of decimal places	✓	✓	✓
C2.3 Understand, use and calculate ratio and proportion, including problems involving scale	✓	✓	
C2.4 Understand and use equivalences between fractions, decimals and percentages	✓	✓	✓
C2.5 Understand and use simple formulae and equations involving one- or two-step operations			✓
C2.6 recognise and use 2D representations of 3D objects		✓	
C2.7 find area, perimeter and volume of common shapes		✓	
C2.8 use, convert and calculate using metric and, where appropriate, imperial measures		✓	
C2.9 collect and represent discrete and continuous data, using ICT where appropriate	✓	✓	✓
C2.10 use and interpret statistical measures, tables and diagrams, for discrete and continuous data, using ICT where appropriate	✓	✓	✓
C2.11 use statistical methods to investigate situations			✓
C2.12 use probability to assess the likelihood of an outcome			