Level 2 Functional Skills Mathematics
Sample paper 1

Provisional mark scheme
VERSION 1.0

www.cityandguilds.com
September 2019

Version 1.0

Guidance notes for Sample Paper Mark Schemes Level 2

Notes for marking open response Problem Solving questions in Section 2:

The mark scheme has been carefully constructed to avoid penalising candidates repeatedly for similar errors.

1) The principle of follow through applies throughout unless otherwise stated. This allows the candidates to gain credit for subsequent correct calculation based on a previous incorrect answer. There is no follow-through between questions, but may be in multi-stage calculations within a question.

2) Units or numbers shown in brackets on the mark scheme are not required for the awarding of mark/s on the candidate's paper. However, if a candidate states units they must be correct:
eg 24(cm) means accept 24cm or 24 but not 24m
eg (£)72.5(0) means accept £72.50 or £72.5 or 72.50 or 72.5

3) Correct money format is expected in final answers unless otherwise indicated eg by brackets ie pounds must have two decimal places or no decimal places unless otherwise stated.
eg (£)5.00 or (£)5 not (£)5.0
eg (£)72.50 not (£)72.5
eg (£)37.43 not (£)37.432

4) URT means unrounded, rounded or truncated; the underlining defines the acceptable limit of approximation:
eg 860. *8652* URT (U is the unrounded version)
the following are acceptable: 860 (T) or 861 (R) 860.8 (T) or 860.9 (R) or 860.86 (T) or 860.87 (R) or 860.865 (R) or 860.8652 (U) but not eg 900.

The 3rd and 4th columns of the mark schemes show the marks to be given for specific responses. Marks in bold are for fully correct answers. Where full marks are not achieved, examiners will award the marks that correspond to the responses given in the grey rows below. Any unforeseen but creditable responses are noted during the early stage of marking and are considered and, where appropriate, added to the mark scheme by the Chief Examiner when the mark scheme is finalised.

Where the marks are awarded for a *complete correct method with one calculation error*, examiners give the mark for a substantially correct solution with a single accuracy error or single (or consistent) early rounding, but not with a method error.

Maths Level 2 Sample paper 1: Section 1 – Non-calculator					
For paper-based, examiners should accept correct answers given as words, including misspelt variants. Candidates must not lose marks for incorrect spelling.					
Question	**Total marks**	**Marks**	**Marks awarded for**	**Item type**	**Subject content statement reference**
1	**1**	**1**	**66.67**	UPK Short answer fixed response	SCS4 [1]
2	**1**	**1**	**28 or 28.0 or 28.00**	UPK Short answer fixed response	SCS5 [1]
3	**1**	**1**	**C**	UPK MC fixed response	SCS7 [1]
4	**1**	**1**	$\frac{3}{5}$ **ie 3 in top box AND 5 in bottom box**	UPK Short answer fixed response	SCS8 [1]
5	**1**	**1**	$\frac{3}{14}$ **ie 3 in top box AND 14 in bottom box**	UPK Short answer fixed response	SCS7 [1]
6	**1**	**1**	**400 or 400.0 or 400.00**	UPK Short answer fixed response	SCS12 [1]
7	**1**	**1**	**90 or 90.0 or 90.00**	UPK Short answer fixed response	SCS3 [1]
8	**1**	**1**	**70 or 70.0 or 70.00**	UPK Short answer fixed response	SCS22 [1]
9	**1**	**1**	**905 or 905.0 or 905.00**	UPK Short answer fixed response	SCS12 [1]
10	**1**	**1**	**51.768**	UPK Short answer fixed response	SCS10 [1]
11	**1**	**1**	**120 (miles)**	Problem solving short answer fixed response	SCS11 [1]
12	**1**	**1**	$\frac{1}{16}$ **ie 1 in top box AND 16 in bottom box**	Problem solving short answer fixed response	SCS26 [1]
13	**1**	**1**	**B**	Problem solving MC fixed response	SCS1 [1]
14	**1**	**1**	**AJ and MT and RD and JR all ticked**	Problem solving short answer fixed response	SCS23 [1]
15	**1**	**1**	**1.5 (km)**	Problem solving short answer fixed response	SCS18 [1]
				Total for Section 1	**15 marks**

Maths Level 2 Sample paper 1: Section 2 – Calculator permitted					
For paper-based, examiners should accept correct answers given as words, including misspelt variants. Candidates must not lose marks for incorrect spelling.					
Question	**Total marks**	**Marks**	**Marks awarded for**	**Item type**	**Subject content statement reference**
1	**1**	**1**	**B**	UPK MC fixed response	SCS19 [1]
2	**1**	**1**	**B**	UPK MC fixed response	SCS14 [1]
3	**1**	**1**	**125 or 125.0 or 125.00**	UPK Short answer fixed response	SCS23 [1]
4	**1**	**1**	**D**	UPK MC fixed response	SCS9 [1]
5	**1**	**1**	**C**	UPK MC fixed response	SCS17 [1]
6	**1**	**1**	**man is right with valid comment referring to relationship between dollar and pound eg 'Because the pound is worth more than the dollar.'**	Problem solving Short answer open response	CHECK
7	**3**	**3**	**(£)625 000**	Problem solving Short answer open response	SCS6 [3]
		2	÷1.12 or ÷112 x 100 seen		
		1	1.12 seen		
8	**4**	**4**	**(£)930 or 930.00**	Problem solving Short answer open response	SCS3 [1] SCS10 [1] SCS13 [2]
		3	complete correct method with one calculation error **or** (£)4650 for taxable amount **or** (£)3000 AND (£)2370 from applying 0.2 to y and p		
		2	correct substitution of given information into formula (y & p)		
		1	(£)16500 for earnings for a year **or** order of operations correct		
9	**4**	**4**	**26 (cm^2)**	Problem solving Short answer open response	SCS16 [4]
		3	6 (cm^2) for area of triangle **or** complete correct method with one calculation error		
		2	correct method to find area of a triangle seen **or** 4(cm) seen for base of triangle and 20(cm^2) seen for area of rectangle		
		1	4(cm) seen for base of triangle **or** 20(cm^2) seen for area of rectangle		
10	**4**	**3**	**13.1 or 13 (photos)** **OR complete correct method with one calculation error**	Problem solving Short answer open response	SCS24 [4]
		2	655 for Σfx		
		1	at least three of 5.5, 15.5, 25.5, 35.5, 45.5, 55.5 for midpoints		
		1	**A valid explanation consistent with their decision (yes or no) and results** **eg 'No because the average number went up after he put the prices up not down'**		
			NOTE: Estimating median and mode of grouped data are above the level, but in the event of a candidate working out the estimated median full marks are available *7 or 8 photos (with some working) = 4 marks* *7.5 photos = 3 marks* *a complete correct method with one error = 2 marks*		

			median class 0-9 = 1 mark *In the event of a candidate giving the modal class as 0-9 = 1 mark*		
11	**4**	**3**	**(£)506.25**	Problem solving Short answer open response	SCS2 [1] SCS15 [3]
		2	complete correct method with one calculation error **or** (£)405 for Monday to Friday **or** (£)101.25 For Saturday		
		1	(£)13.50 for Saturday rate **or** 37.5 hours for Mon-Friday seen		
		1	**a suitable check of their calculations using reasonable approximated values** **eg (5x7x10 =350) + (1.25x10x8 =100) =450**		
12	**4**	**3**	**(£)8.8*94117647 URT* for cost of travelling extra distance per week**	Problem solving Short answer open response	SCS10 [1] SCS11 [1] SCS13 [1] SCS15 [1]
		2	7.*058823529 URT* for litres per week **or** 14.8*2352941 URT* for pence per mile **or** 4.4*4705882 URT* for travelling extra distance based on journey one way only **or** a complete correct method with one error or early rounding		
		1	60 for miles per week (Note this may be split if they do it per journey and then double at the end or if they do one day and then x5 at the end)		
		1	**comparison of their calculated increased travel cost with increased pay (£8.50)** **AND decision with explanation just comparing the two values or reference to things like increased servicing costs/wear and tear etc**		
13	**5**	**5**	**monthly tickets recommended** **AND explanation referring to cost AND time of travel/off-peak restrictions** **AND (£)682.20 for total for monthly tickets AND (£)832 for day returns AND (£)769.60 for weekly tickets**	Problem solving Short answer open response	SCS13 [5]
		4	monthly tickets recommended or ticket consistent with their results **and** explanation referring to cost **or** time of travel/off-peak restrictions **and** (£)682.20 for total for monthly tickets **and** (£)832 for day returns **and** (£)769.60 for weekly ticket **or** complete correct method with one calculation or rounding error **and** corresponding decision **and** explanation		
		3	monthly tickets recommended or ticket consistent with their results **and** explanation referring to cost **or** time of travel/off-peak restrictions **and** two of total costs from (£)682.20 for monthly tickets; (£)832 for day returns; (£)769.60 for weekly tickets **or** all three total costs correct, but incorrect/no recommendation		

		2	monthly tickets recommended or ticket consistent with their results **and** explanation referring to cost **or** time of travel/off-peak restrictions **and** one of total costs from (£)682.20 for monthly tickets; (£)832 for day returns; (£)769.60 for weekly tickets **or** two total costs correct, but incorrect/no recommendation		
		1	any one total cost correct from day return (£)832 off-peak day return (£)644.80 weekly (£)769.60 monthly (£)682.20		
14	**5**	**5**	**Yes or equivalent** **AND explanation referring to average days before AND after changes** **AND supporting figures or calculations eg 9 days and 7 days (for mean) or 10 days and 8 days (for median)**	Problem solving Short answer open response	SCS25 [5]
		4	one mean or one median correct **and** consistent decision and explanation **or** two means or two medians correct with incorrect/no explanation or decision		
		3	one mean or one median correct		
		2	correct method for one mean or median		
		1	180 **and** 105 for total days off in each year **or** correct ordering of both sets of data		
15	**6**	**1**	**suitable axes and scale to plot the data for temperature and cold drinks**	Problem solving Short answer open response	SCS19 [2] SCS28 [4]
		1	**suitable title and labels eg *temperature °C* and *Number of cold drinks sold*. Accept either orientation.** **Note: consider labelling as a whole, eg title may be used to clarify vertical axis label**		
		2	**12 plots correct ±1 small square (onscreen) / ±½ small square (paper)**		
		1	6 plots correct ±1 small square (onscreen) / ±½ small square (paper)		
		1	**value for Monday clearly marked on their graph eg by line of best fit (accept any straight line through the points with roughly equal number of plots either side)**		
		1	**correct interpolated value from their graph eg 33 drinks**		
Total for Section 2					**45 marks**

Example graph for Section 2 Question 15