Level 2 Functional Skills Mathematics

SAMPLE 3

Mark scheme
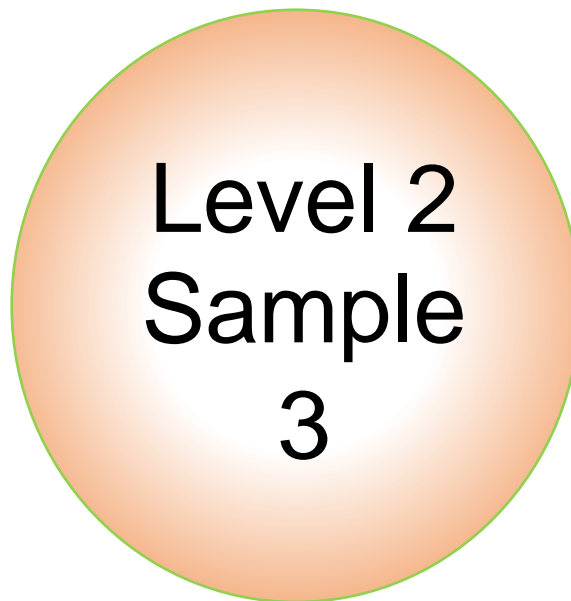16 June 2020

Level 2 Sample 3

Guidance notes for Mark Schemes
Level 1 and 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 3: Section 1 – CALCULATOR NOT PERMITTED					
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	**743.4**	UPK Short answer fixed response	SCS10 [1]
2	1	1	**625**	UPK Short answer fixed response	SCS12 [1]
3	1	1	**70˚**	UPK Short answer fixed response	SCS22 [1]
4	1	1	**C** $(\frac{3}{2}x10)$	UPK MC fixed response	SCS1 [1]
5	1	1	$\frac{13}{25}$	UPK Short answer fixed response	SCS4 [1]
6	1	1	$\frac{1}{12}$	UPK Short answer fixed response	SCS27 [1]
7	1	1	**C (3x16)**	UPK MC fixed response	SCS2 [1]
8	1	1	**-1**	UPK Short answer fixed response	SCS12 [1]
9	1	1	**B (5, -3)**	UPK MC fixed response	SCS19 [1]
10	1	1	**C**	UPK MC fixed response	SCS 20 [1]
11	2	2	$\frac{1}{10}$ **OR 0.1 OR 10%**	Problem solving short answer fixed response	SCS26 [2]
		1	$\frac{3}{30}$		
12	3	3	**60cm**	Problem solving short answer fixed response	SCS11 [1] SCS14 [2]
		2	0.6 (m) (for length of model in metres)		
		1	30 (m) or 3000(cm) (actual length of ship) **or** ÷ 50 seen		
Total for Section 1					**15 marks**

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	**(£)636**	UPK short answer fixed response	SCS5 [1]
2	1	1	**10.788**	UPK short answer fixed response	SCS10 [1]
3	1	1	**B**	UPK MC fixed response	SCS9 [1]
4	1	1	**£ 200**	UPK short answer fixed response	SCS6 [1]
5	1	1	$\dfrac{2}{5}$	UPK Short answer fixed response	SCS 8 [1]
6	1	1	**Yes AND explanation why 3m is not reasonable** **eg The child would reach up to the ceiling** **eg The child would be a giant** **eg The parent misread metres for feet on the tape measure**	UPK Short answer fixed response	Check for reasonable ness
7	2	2	**35.*9550561* URT %**	Problem solving Short answer Fixed response	SCS6 [2]
		1	32 ÷ 8.9 or equivalent		
8	3	3	**1650 (m²)**	Problem solving Short answer Fixed response	SCS16 [1] SCS18 [2]
		2	20(m) **and** 82.5(m)		
		1	20(m) **or** 82.5(m) **or** 20 000(mm) and 82500(mm)		
9	3	3	**56.*7* (kg) URT**	Problem solving Short answer Fixed response	SCS15 [2] SCS17 [1]
		2	0.081(m³)		
		1	x 700		
10	4	4	**yes and suitable explanation** **eg yes 4 hours 23 minutes (cooking and resting time) AND 5:53pm (finish time is before 6pm)** **eg yes 4 hours 23 minutes (cooking and resting time) AND 1:37pm (time to start is after cook's time to start)** **accept sensible rounded times**	Problem solving Short answer Open response	SCS5 [4]
		3	4 hours 23 minutes **and** 5:53pm **or** 1:37pm without explanation		
		2	4 hours 23 minutes **or** 5:53pm **or** 1:37pm seen **or** 263 (minutes) for total cooking and resting time **or** 3 hours 18 minutes for cooking time only		
		1	198 (minutes) for 4.4 x45mins only **or** correct finish or start time using their (incorrect) cooking time		

11	**4**	**4**	**8.16(kg) of Brazilian AND 2.04(kg) Kenyan**	Problem solving Short answer fixed response	SCS11 [4]
		3	8160(g) **and** 2040(g) **or** 8.16(kg) **or** 2.04(kg)		
		2	8160g **or** 2040g **or** 10200 ÷ 5 seen **or** 10.2 ÷ 5 **or** 68(g) **and** 17(g) for beans needed per cup		
		1	10.2 (kg) **or** 10200 (g) (of beans for 120 cups) **or** ÷ 5 **or** 68 **or** 17g for beans need per cup		
12	**5**	**1**	**yes and a clear explanation relating to a correct calculation of Yoga classes required** **eg Yoga classes cost £312 for 52 classes** *(which is less than £360)* *follow through their number of Yoga classes*	Problem solving Short answer fixed response	SCS13 [2] SCS28 [2] SCS10 [1]
		4	**value between 48 and 57 for number of Yoga classes required**		
		3	value between 16 and 19 weeks (to reach healthy weight)		
		2	value between 14kg and 16kg needed to be lost **or** £18 cost of Yoga per week		
		1	value between 84kg and 86kg (for their healthy weight **or** ÷ 0.75 **or** 3 hours (of yoga needed a week)		
13	**6**	**1**	18.338m² or 7.897 m³ and 10.441 m³ for areas of two walls	Problem solving Short answer open response	SCS13 [3] SCS16 [3]
		1	**£16 OR 1 tin of paint with working** **eg 18.*338*m² *URT* (is less than 30m³)** *follow through their area*		
		2	**4 rolls of paper with working** **eg 37.1m (length of 14 widths of wallpaper) and 40m (length of 4 rolls of wallpaper)** **eg 18.338m² (area of walls) ÷ 5.2m²(area of roll of wallpaper) gives 3.5265 rolls of paper (rounded up to 4)** **accept other suitable alternatives and rounding** *follow through their area*		
		1	part of calculation to find total rolls of paper needed 2.98 ÷ 0.52 = 5.*7308* URT (6 widths) **or** 3.94 ÷ 0.52 = 7.*5769* URT (8 widths) **or** 6.92 ÷ 0.52 = 13.*3077* URT (14 widths) **or** 7.897 ÷ 5.2 = 1.5*187* URT **or** 10.441 ÷ 5.2 = 2.*007* URT **or** 18.338 ÷ 5.2 = 3.*5265* URT **or** x 2.65 **and** ÷ 10		
		2	**correct decision based on their costs and the £75 budget AND explanation** **eg they are below budget of £75 (because the costs are £56**		
		1	£56 without explanation **or** £16 + £40 *follow through their number of rolls and paint*		

14	6	1	line graph or scatter graph with suitable axis labels note: consider labelling as a whole, eg a title may be used to clarify or substitute for vertical axis label	Problem solving Short answer open response	SCS28[6]
		1	suitable axes with scale to plot all the data		
		2	all 8 plots correct		
		1	any 2 plots correct		
		1	trend line and position of estimate shown		
			example graph: note axes may be inverted		
		1	correct interpolation from their graph eg 35 (days) for the age of the abandoned kitten		
15	6	3	2.2 for the mean	Problem solving Short answer Fixed and open response	SCS23[4] SCS25[2]
		2	209 for ∑fx and 95 for n		
		1	209 for ∑fx or 95 for n		
		1	2 identified as mode		
		1	correct comment with reference to their mean eg yes (congestion charge is effective because) 2.2 > 1.65		
		1	correct comment with reference to their mode eg yes (congestion charge is effective because) 2 > 1		
			Total for Section 2		**45 marks**