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NCFE Level 2 Functional Skills Qualification in Mathematics (603/5060/X)

Mark scheme: P001457

v1.5 Post standardisation Refresher 9.9.2022

Examiner Mark Scheme Guidance

Information

This guidance is intended to support NCFE examiners in the valid, reliable and consistent application of the relevant mark scheme version, against learner evidence generated during their external assessment.

This mark scheme provides:

- the total marks available for each question
- the subject content reference for each mark
- example process/methods and evidence of the types of responses expected for each mark
- (once confirmed) the pass mark for the relevant assessment version.

This mark scheme **must** be used for paper-based and online marking of the assessment version indicated**.**

Instructions and guidance on application

- All learners must receive the same treatment and should be marked fairly. Examiners must mark the first learner in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Learners must be rewarded for what they have shown they can do rather than penalised for things they have not done.
- Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Half marks must not be awarded.
- Examiners should be prepared to award zero marks if the learner's response is not worthy of credit according to the mark scheme.
- The mark scheme is a working document and may be added to at the standardisation to reflect valid alternative answers given by a learner.
- When in doubt regarding the application of the mark scheme to a learner's response, the Chief Examiner must be consulted.

This mark scheme provides the following information:

- section and activity information
- question number
- total marks available per question (top row, shaded) followed by
- attribution of individual marks per question
- problem solving (PS) and underpinning skill (UPS) attribution
- process/method or answers, as well as additional or alterative evidence; indicative of the subject content (SC) attribution
- any additional guidance, as required.

To support the valid, reliable and consistent marking of learner evidence, the following abbreviations are applied throughout the mark scheme:

Annotation	Explanation and use
FT	Follow through marks are applied when there are earlier arithmetic mistakes in the method.

OE	Or equivalent marks are available for the justification of the answer being presented in a different form to the mark scheme i.e. 0.5 or ½.
CAO	Correct answer only.
Their	'Their' refers to the learners' own derived values.
Seen	Seen refers to the requirement to see the stated value in the learner's response or working out.
Imp	Implied refers to the learner's response implying correct working out used but not seen.
Brackets	Indicates units are not required on final answers or for answers seen within working.
BOD	Benefit of doubt where learner handwriting may be difficult to interpret but previous working may indicate correct final answer.
Shaded	Indicates requirements for full marks to be awarded.
Coloured SC box	**On-screen only:** indicates where SC ref will appear out of order in the Learning Outcomes marking screen

Version Control

Mark schemes are subject to version control. Examiners **must** ensure they have access to the latest version following each standardisation event.

Over time mark schemes will incorporate additional evidence captured and confirmed during standardisation events. Any additional evidence criteria will be captured in colour-coded text applicable to the dated standardisation event.

Recording of marks

Paper-based: Individual marks should be annotated in the 'Examiner' column in the learner script, added up and recorded at the end of each activity. The overall marks awarded for each learner should be clearly and legibly recorded in the grid on the front of the learner script.

Online: Onscreen marking tools (i.e. ticks, crosses) marks should be applied to indicate application throughout the learner script, in addition to marks being recorded numerically within the corresponding 'Learning Outcomes' box, indicated by the relevant Subject Content reference.

Annotation	Explanation and use
Tick	Used to indicate correct values/method or final answer.
Red highlight	Used to indicate where the learner has made an error in either the value used or an incorrect calculation.
Red line box	Used to indicate where the learner may have made an error that has resulted in benefit of doubt being applied i.e. transposition of figures but previous working clearly shows otherwise.

Paper number: P001457 P10				Version: 1.5	Pass mark: 37
(Section A) Activity 1: Motorcycle racing (Non-calculator Test)					
Q	**Marks**	**UPS / PS**	**Process and Answer**	**Additional or Alternative Evidence (with guidance)**	**SC**
1 (a)	**2**	**UPS**	4743	Award 2 marks if correct answer given	
	1		4650 × 1.02	OE any full correct method	N6a
	1		4743	CAO	N6a
1 (b)	**3**	**PS**	4.5 (km)		
	1		2.7 and 0.6	CAO	N2b
	1		their 2.7 ÷ their 0.6	If not rounded to 2.7 their 2.7 must be 2.68 or 2.678 If not rounded to 0.6 their 0.6 must be 0.62, 0.621 or 0.6214	M14a
	1		4.5 (km)	Allow FT correct value from incorrect rounding FT only applies if eithe previous marks not awarded	M14a
1 (c)	**4**	**PS**	See below		
	1		1:17.986	CAO OE time format	H23a
	1		(1:)21.467 – (1:)16.008 or 5.459	Accept if method shown with colons	N10a
	1		Valid comparison of ranges, eg Damon's lap times were more consistent than Ralphie's	Must refer to spread of times, eg Ralphie's lap times are more spread out or Ralphie's lap times are more variable or the range is wider for Ralphie. Do not allow the range is higher. FT Their range	H25
	1		Valid comparison of medians, e.g. the median lap time for Damon was faster than Ralphie's	FT Their median	N9a
1 (d)	**3**	**PS**	1.6625 (miles)	Award 3 marks if correct answer given	
	1		126 ÷ (60 × 60) or 0.035	OE	M15
	1		Their 0.035 × 47.5 OR (126 x 47.5) ÷ 3600	Their 0.035 must come from correct method to convert units OE allow any full correct method Implies 1st mark	M15

				Award if rounded value of 0.04 used	
	1		1.6625 (miles)	Allow 1.66, 1.663, 1.67, 1.7	N10b
1 (e)	**2**	**PS**	$\frac{4}{21}$	Award 2 marks if correct answer given	
	1		$1 - \frac{2}{3} + \frac{1}{7}$ or $\frac{17}{21}$ seen	OE	N7a
	1		$\frac{4}{21}$	OE	N7a
1 (f)	**1**	**UPS**	2 215 763	CAO	N2a

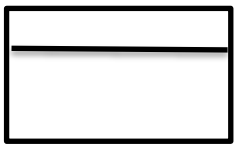
(Section B) Activity 2: Hotel (Calculator Test)					
Q	**Marks**	**UPS / PS**	**Process and Answer**	**Additional or Alternative Evidence (with guidance)**	**SC**
2 (a)	**1**	**UPS**	3 400 019	CAO	N1a
2 (b)	**2**	**PS**	See below		
	1		$\frac{81}{216}$	OE Allow 216 × 0.4 or 86.4	N8
	1		No and $\frac{15}{40}$ and $\frac{16}{40}$	OE No, supported by correct working Implies first mark Allow any direct comparison e.g. No and 86(.4) No and 0.375 and 0.4 No and $\frac{30}{80}$ and $\frac{32}{80}$	N7b
2 (c)	**4**	**PS**	(£) 520	Award 4 marks if correct answer given	
	1		3	CAO May be implied by 25 + 16 + 5 + 4 or 50	H23b
	1		(25 + 16 + 5 + 4) × 10 or 500 OR 25 + 16 + 5 + 4 or 50	FT their mode using 1 - 6 500 or 50 Implies 1st mark	M13a
	1		Their 500 × 1.04	FT their mode using 1 - 6 FT Their total number of guests from use of mean or median ×10 OE	N6a

	1		(£) 520	FT Their 500 from their working from x 10	N6a
2 (d)	**2**	**PS**	See below		
	1		300 × (3 + 7 ÷ 2) or 1950		N3
	1		(Tier) 3 and 1950	OE tier 3 supported by correct working	N12
2 (e)	**2**	**UPS**	153.2(cm)	Award 2 marks if correct answer given	
	1		60.3 × 2.54 or 153.162		M14a
	1		153.2(cm)	CAO	N9b
2 (f)	**4**	**PS**	479	Award 4 marks if correct answer given	
	1		0.5 x (20.5 -17) x 23 or 40.25 OR 0.5 x (20.5 -17) x 0.5 x 23 or 20.125	OE correct method for area of triangle or trapezium e.g. (20.5 + 17) ÷ 2 × (23 ÷ 2) or 215.625	M16b
	1		431.25	CAO	M16b
	1		Their 431.25 ÷ 0.9 or 479.166	Their 431.25 must come from correct method for total area	N11a
	1		479	FT their 479.166 following ÷ 0.9 rounded down to nearest whole number.	N9b

Activity 3: Product design (Calculator Test)					
Q	**Marks**	**UPS / PS**	**Process and Answer**	**Additional or Alternative Evidence (with guidance)**	**SC**
3 (a)	**1**	**UPS**	C indicated	CAO	M20
3 (b)	**2**	**UPS**	681.38 (mm^2)	Award 2 marks if correct answer given	
	1		3.14 × 7 × 7 + 3.14 × 7 × 24	Award if 3.14 ×7^2 + 3.14 ×7 ×24 seen	M17b
	1		681.38 (mm^2)	Allow 681.72… from use of π button or 681.4 Implies first mark	M17b
3 (c)	**2**	**PS**	No AND 2 (litres) OR No AND 11.2 (litres)	Award 2 marks if correct answer given	
	1		14 ÷ (4 + 2 + 1) or 2 OR 1.6 × (4 + 2 + 1) or 11.2		N11a

	1		No AND 2 (litres) OR No AND 11.2 (litres)	OE no, supported by correct working	N11a
3 (d)	**1**	**UPS**	20	CAO	H28
3 (e)	**5**	**PS**	See below		
	1		Scatter diagram completed with an appropriate line of best fit.	Line must go through ([900,1100], [0,4]) and ([2700,2900), (46,50)]	H28
	1		[38, 42]	Fault rate at 2500 setting identified correctly If line of best fit attempted, FT their line. If no line attempted, values in range imply previous mark	H28
	1		48	CAO Median at 2600 setting identified correctly	H23a
	1		Their [38,42] ÷ their 48 x 100 or [79.16, 87.5] OR 87.5 or 0.9 x their 48 or 43.2	OE Their 48 must be between 0 and 60	N5b
	1		No AND their % value OR No AND 43.2 and [38, 42]	OE No supported by correct working FT their line/reading Accept Yes and their % value if their percentage is greater than 90%	M15
3 (f)	**4**	**PS**	48.9	Award 4 marks if the answer is seen	
	1		(26000 × 15) + (42000 × 45) + (17000 × 75) + (9000 × 105) + (6000 × 135) or 5 310 000	Must use midpoints Allow not using 000 in each figure	H24
	1		Their 5 310 000 ÷ 100 000 or 53.1	Implies 1st mark Allow not using 000 in each figure Allow consistent use of upper or lower bounds	H24
	1		Their 53.1 × 0.92 or 48.852	Their 53.1 following an attempt at a mean including ÷ 5 Allow consistent use of upper or lower bounds	N6a
	1		48.9	CAO	N9b

Activity 4: House extension (Calculator Test)					
Q	**Marks**	**UPS / PS**	**Process and Answer**	**Additional or Alternative Evidence (with guidance)**	**SC**

4 (a)	**2**	**PS**	(4,0) and (9,0) or (4,10) and (9,10)	Award 2 marks if correct answer given	
	1		(4,0) or (4, 10) or (9,0) or (9,10)	CAO	M22b
	1		(4,0) and (9,0) or (4,10) and (9,10)	CAO If both pairs of coordinates given, mark the better answer Brackets not required, must have comma or space	M22b
4 (b)	**2**	**UPS**	See below		
	1			Correct side view	M21
	1			Correct front view Mark intention Top rectangle must be smaller than bottom	M21
4 (c)	**4**	**PS**	4160 (watts)	Award 4 marks if correct answer given	
	1		0.5 × (3 + 2.5) × 6 × 6	OE full correct method for total volume, e.g. 6 × 2.5 × 6 + (3 – 2.5) × 6 × 0.5 × 6 or 6 × 3 × 6 – (3 – 2.5) × 6 × 0.5 × 6	M17a
	1		99	CAO	M17a
	1		Their 99 × 40 + 100 × 2	Their 99 must come from correct method for volume	N3
	1		4160 (watts)	CAO	N3
4 (d)	**2**	**PS**	No and 5.9 (cm) or No and 10.8 (m)	Award 2 marks if correct answer given	
	1		11.8 × 100 ÷ 200 or 5.9 or 5.4 × 200 ÷ 100 or 10.8	OE any full correct method	M18b
	1		No and 5.9 (cm) or No and 10.8 (m)	OE No supported by correct working	M18b
4 (e)	**2**	**PS**	Yes AND 0.8(7...) and 0.7(5...)	Award 2 marks if correct answer given	
	1		$\frac{267}{306}$ or $\frac{94}{124}$	OE any full correct method	H27

	1		Yes AND 0.87… and 0.75…	OE yes, supported by correct working	H27
4 (f)	**1**	**UPS**	$\frac{30}{700}$ or 0.04(2...) or 3/70 or 4.2%	OE allow any correct rounding Award if fraction stated as 3 out of 7, 3 over 7, etc	H26
4 (g)	**2**	**UPS**	10	Award 2 marks if correct answer given	
	1		9	CAO	N12
	1		10	CAO	N12

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