



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

Mark scheme: P001258

Assessment window: Monday 14 October 2019 – Friday 18 October 2019  
v1.1

past paper

# 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 alternative 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 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.

<b>CAO</b>	Correct answer only.
<b>Their</b>	'Their' refers to the learners' own values.
<b>Seen</b>	Seen refers to the requirement to see the stated value in the learner's response or working out.
<b>Imp</b>	Implied refers to the learner's response implying correct working out used but not seen.
<b>Brackets</b>	Indicates units are not required on final answers or for answers seen within working.
<b>BOD</b>	Benefit of doubt where learner handwriting may be difficult to interpret but previous working may indicate correct final answer.
<b>Shaded</b>	Indicates requirements for full marks to be awarded.

### 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.

<b>Annotation</b>	<b>Explanation and use</b>
<b>Tick</b>	Used to indicate correct values/method or final answer.
<b>Red highlight</b>	Used to indicate where the learner has made an error in either the value used or an incorrect calculation.
<b>Red line box</b>	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:		Paper-based 1 (Oct 19)		Version: 1.1	
(Section A) Activity 1: Swimming (Non-calculator Test)					
Q	Marks	UPS / PS	Process and Answer	Additional or Alternative Evidence (with guidance)	SC
1 (a)	2	PS	65(p)	Award 2 marks if correct answer given	
	1		$\frac{5.2 \times 12.5}{100}$ or $(5.2 \div 10) + ((5.2 \div 10) \div 4)$	OE Any full correct method for finding 12.5% of 5.2 or 520(p)	N5a
	1		65(p)	CAO	N5a
1 (b)	2	UPS	(£)4.(00)	Award 2 marks if correct answer given	
	1		$5.2(0) \div 1.3$ or $\frac{5.2 \times 100}{130}$	OE Any full correct method for 5.2 or 520(p)	N6b
	1		(£)4.(00)	CAO	N6b
1 (c)	4	PS	See below		
	1		$2 \times ((2500 \times 150) + (1250 \times 150))$	OE Mark for surface area method Ignore base area if calculated and added $(+ (2500 \times 1250) \text{ or } (+ 3\,125\,000))$	M17b
	1		$2 \times (375\,000 + 187\,500)$ or $750\,000 + 375\,000$	OE Mark for correct multiplications Ignore base if calculated $(+ 3\,125\,000)$ $750\,000 + 375\,000$ seen implies first 2 marks	N2a
	1		1 125 000 (or 4 250 000 if base area included)	CAO	N2a
	1		Yes with 1.125 (million cm <sup>2</sup> ) or Yes with 1000 000 and 1125000	FT <b>their</b> areas if correct comparison made and their area is greater than 1000 000  Explanation using correct consistent representation of numbers	N1b
1 (d)	4	PS	0.4 and yes	Award 4 marks if correct answer given	
	<b>Alternative method 1:</b> (Convert goldfish speed to m/s, and compare to swimmer)				
	1		1.44 (km)	CAO Converts 0.9 miles to km	M14b
	1		<b>their</b> $1.44 \times 1000$ or 1440 (m) or <b>their</b> $1.44 \div (60 \times 60)$ or 0.0004(km/s)	" <b>Their</b> " is value calculated in 1 <sup>st</sup> mark	M15
1		<b>their</b> $1440 \div (60 \times 60)$ or <b>their</b> $0.0004 \times 1000$ or 0.4	OE " <b>Their</b> " is value calculated in 2 <sup>nd</sup> mark	N2a	

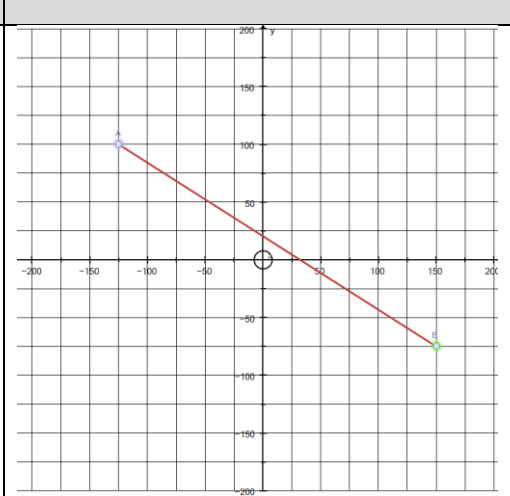
	1		0.4 (m/s) and yes (the swimmer is faster than a goldfish)	CAO	M15
<b>Alternative method 2:</b> (Convert swimmer and goldfish speed to km/hour)					
	1		1.44 (km)	CAO Converts 0.9 miles to km	M14b
	1		$1.9 \times 3600$ or 6840 (m/h) or $1.9 \div 1000$ or 0.0019 (km/s)		M15
	1		<b>their</b> $6840 \div 1000$ (km/h) or <b>their</b> $0.0019 \times 3600$ or 6.84(km/h)	"Their" is value calculated in 2 <sup>nd</sup> mark	N2a
	1		6.84 (km/h) and yes	CAO	M15
<b>1 (e)</b>	<b>3</b>	<b>UPS</b>	26.7 (mins) or 26 mins 42 seconds	Award 3 marks if correct answer given	
	1		$(25.5 \times 2) + (26.5 \times 4) + (27.5 \times 4)$ or $51 + 106 + 110$ or 267		H24
	1		<b>their</b> $267 \div 10$	"Their" is value calculated in 1 <sup>st</sup> mark	H24
	1		26.7 (mins) or 26 mins 42 seconds	CAO	H24

<b>(Section B) Activity 2: Ice (Calculator Test)</b>					
Q	Marks	UPS / PS	Process and Answer	Additional or Alternative Evidence (with guidance)	SC
<b>2 (a)</b>	<b>4</b>	<b>PS</b>	See below		
	1		37.5	CAO	M17b
	1		15.625	CAO	M17a
	1		2.4 : 1 or 12 : 5	OE Expresses <b>their</b> SA:V ratio FT <b>their</b> values for SA and V	N11a
	1		Answer in range 11 to 14 incl with correct working	FT <b>their</b> values for SA and V Do not accept value in range without working as it may come from using 2.5 from the question	H28
<b>2 (b)</b>	<b>1</b>	<b>UPS</b>	Any triangular prism correctly drawn		M21
<b>2 (c)</b>	<b>5</b>	<b>PS</b>	340.7 (cm <sup>3</sup> )	Award 5 marks if correct answer given	
	<b>Alternative method 1</b>				


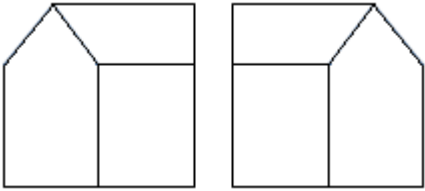
	1		$0.5 \times 3 \times 2.6$ or 3.9	Calculates area of triangle	M16b
	1		<b>their</b> $3.9 \times 3.5$ or 13.65	Calculates volume of water in triangular prism "Their" is value calculated from correct area method	M17a
	1		<b>their</b> $13.65 \times 24$ or 327.6	Calculates total volume of water in mould "Their" is value calculated in 2 <sup>nd</sup> mark	M17a
	1		$1.04 \times$ <b>their</b> 327.6 or 340.7(04) or $327.6 + (\text{their } 327.6 \times 4 \div 100)$	Any correct full method for increasing by 4%. "Their" is value calculated in 3 <sup>rd</sup> mark	N6a
	1		340.7(04) (cm <sup>3</sup> )	CAO	N6a
<b>Alternative method 2</b>					
	1		$0.5 \times 3 \times 2.6$ or 3.9	Calculates area of triangle	M16b
	1		<b>their</b> $3.9 \times 3.5$ or 13.65	Calculates volume of water triangular prism "Their" is value calculated from correct area method in 1 <sup>st</sup> mark	M17a
	1		or $1.04 \times$ <b>their</b> 13.65 or 14.196 or 14.2 or <b>their</b> $13.65 + (\text{their } 13.65 \times 4 \div 100)$	Any correct full method for increasing by 4%. "Their" is value calculated in 2 <sup>nd</sup> mark	N6a
	1		<b>their</b> $14.196 \times 24$ or 340.7(04)	Calculates volume of ice in mould "Their" is value calculated in 3 <sup>rd</sup> mark	M17a
	1		340.7(04) (cm <sup>3</sup> )	CAO	N6a
<b>2 (d)</b>	<b>2</b>	<b>UPS</b>	89 (%)	Award 2 marks if correct answer given	
	1		$0.92 \div 1.03$ or 0.89(3...) or 89(.3...)(%)		N5b
	1		89 (%)	CAO	N5b
<b>2 (e)</b>	<b>1</b>	<b>UPS</b>	40 000 000	CAO	N1a
<b>2 (f)</b>	<b>2</b>	<b>PS</b>	$\frac{3}{8}$	Award 2 marks if correct answer given	
	1		$\frac{15}{40}$	OE	N8
	1		$\frac{3}{8}$	CAO	N8

Activity 3: Wages (Calculator Test)						
Q	Marks	UPS / PS	Process and Answer	Additional or Alternative Evidence (with guidance)	SC	
3 (a)	4	PS	See below			
	<b>Alternative method 1</b>					
	1		$(37 \times 48 \times 8.25) - 12500$ or $14652 - 12500$ or 2152	Calculates taxable amount per year	M13a	
	1		$0.2 \times \text{their } 2152$ or 430.4 or $2 \times (\text{their } 2152 \div 10)$	OE full correct method for finding 20% "Their" is value calculated in 1 <sup>st</sup> mark Calculates annual tax	M13b	
	1		<b>their</b> $430.4 \div 48$ or 8.966(...)	Calculates weekly tax "Their" is value calculated in 2 <sup>nd</sup> mark	M13b	
	1		(£)8.966(...) or (£)8.97 and no	CAO Correct answer and decision (£)8.96 must be from working	M13b	
	<b>Alternative method 2</b>					
	1		$37 \times 8.25$ or 305.25 <b>and</b> $12500/48$ or 260.42 or 260.416(...)	Methods for finding weekly pay <b>and</b> weekly allowance	M13a	
	1		<b>their</b> $305.25 - \text{their } 260.416(\dots)$ or 44.83(...)	Calculates taxable pay per week "Their" is value calculated in 1st mark	M13b	
	1		$0.2 \times \text{their } 44.83(3\dots)$ or 8.966(...) or $2 \times (\text{their } 44.83(3\dots) \div 10)$	OE full correct method for finding 20% Calculates weekly tax "Their" is value calculated in 3rd mark	M13b	
	1		(£)8.966(...) or (£)8.97 and no	CAO Correct answer and decision (£)8.96 must be from working	M13b	
	3 (b)	2	PS	See below		
		1		$\frac{3}{10}$ or 0.3 or $480 \div 10$ or 48		N11a
		1		144 or 0.38(...) or 0.39 and no	Accept comparison of 38.5(%) or 39(%)	N11a
3 (c)	2	PS	(£)2020	Award 2 marks if correct answer given		
	1		$908.64 \div 0.45$ or 2019.2(0)	OE May be seen in stages e.g. $\div 45$ then $\times 100$	N6b	
	1		(£)2020	CAO	M13a	

<b>3 (d)</b>	<b>5</b>	<b>PS</b>	See below		
	1		$457\,260 \div 12 = 38105$	Correct mean for last year	H25
	1		$592\,578 \div 14 = 42327$	Correct mean for this year	H25
	1		( <b>their</b> $42327 - \text{their } 38105$ ) $\div 38105$ or $11(.07\dots)$  or $1.1 \times \text{their } 38105$ or $41915.50$	Calculates the percentage increase or finds last year increased by 10%  “ <b>Their</b> ” is values calculated in 1 <sup>st</sup> and 2 <sup>nd</sup> marks	M13b
	1		70407 and 141750	Range for both sets	H25
	1		States that both statements are correct	FT <b>their</b> values if method fully correct	N1b
<b>3 (e)</b>	<b>2</b>	<b>UPS</b>	0.375 <b>and</b> 37.5	Award 2 marks if correct answer given	
	1		0.375	CAO	N4
	1		37.5%	CAO	N4

<b>Activity 4: Archaeology (Calculator Test)</b>					
<b>Q</b>	<b>Marks</b>	<b>UPS / PS</b>	<b>Process and Answer</b>	<b>Additional or Alternative Evidence (with guidance)</b>	<b>SC</b>
<b>4 (a)</b>	<b>2</b>	<b>UPS</b>	See below		
	1		At least one point plotted correctly.		M19
	1		Both points plotted correctly and joined by a straight line.		M19
<b>4 (b)</b>	<b>2</b>	<b>PS</b>	45 (°)	Award 2 marks if correct answer given	
	1		Point drawn on diagram and line drawn to create required angle.		M19



	1		45 (°)	Implies first mark. No tolerance or FT as angle can be deduced accurately.	M22a
4 (c)	2	PS	See below		
	1		Shape of plan view correct (any orientation)		M21
	1		Shape of side elevation correct (ignore windows)	 <p>Ignore windows if drawn. Allow roof to be lower but must be correct shape. Middle vertical line may be missing.</p>	M21
4 (d)	1	PS	Any correct explanation relating to order of operations	e.g. she should have multiplied first You have to do $4 \times 18.8$ first	N12
4 (e)	2	PS	'It is not possible to decide' with 2.18(75)	Award 2 marks if correct answer given	
	1		2.18(75)	Accept rounding to 2.2 or 2.19	N3
	1		'It is not possible to decide' with 2.18(75)	CAO Compares 2.18(75) or 2.2 or 2.19 with 2.9 (and 2.0)	N9a
4 (f)	2	UPS	4.2 (%)	Award 2 marks if correct answer given	
	1		$0.35 \times 0.12$ or 0.042		H26
	1		4.2 (%)	CAO	H27
4 (g)	1	PS	No with correct explanation	e.g. there is no mode e.g. 48 is the highest <b>not</b> the mode	H23b
4 (h)	3	PS	$\frac{8}{13}$	Award 3 marks if correct answer given	
	1		35	Median for 9 volunteers i.e. current 5 <sup>th</sup> value	H23a
	1		32	Value for Chen implies first mark	H23a
	1		$\frac{8}{13}$	CAO	N8