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

Mark scheme: Practice P001269
v1.2

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 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 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.

Version Control

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

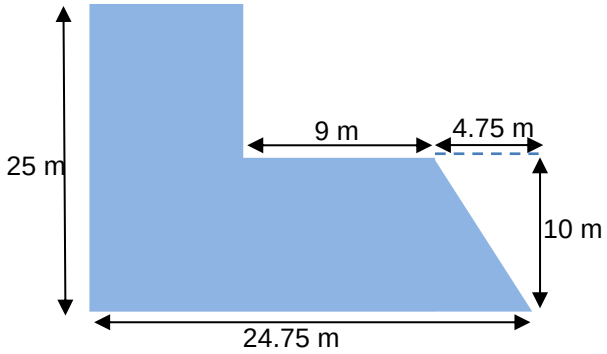
Over time mark schemes will incorporate additional evidence captured and confirmed during standardisation events. Any additional evidence criteria will be captured in colour-coded text applicable to the dated standardisation event.

Note: Pass marks for Functional Skills external assessments are set in an awarding meeting, in which a combination of statistical analysis and professional judgement is used to determine the minimum required standard to achieve a pass in the assessment.

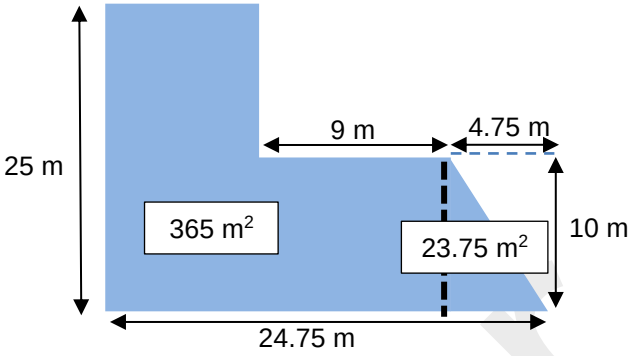
While different versions of the same assessment are designed to be of the same level of difficulty, variations in content can lead to the minimum required standard being represented by different marks across versions.

Paper number: P001269				Version: 1.2	Pass mark: 36
(Section A) Activity 1: Moving office (Non-calculator Test)					
Q	**Marks**	**UPS / PS**	**Process and Answer**	**Additional or Alternative Evidence (with guidance)**	**SC**
1 (a)	**2**	**UPS**	263.25 (m^2)	Award 2 marks if correct answer given	
	1		27 × 9.75		N11a
	1		263.25 (m^2)	CAO implies first mark	N11a
1 (b)	**4**	**PS**	See below	Award 4 marks for 388.75 and (Office) B	
	1		Correct total area of rectangular element(s)	Do not accept for one rectangle only	M16b
	1		Correct area of triangle or trapezium		M16b
	1		**Their** 388.75 (m^2)	FT **their** areas from 1st and 2nd marks (if correct method) of rectangles and triangle/trapezium	M16b
	1		Correct decision based on **their** values	11.25 (m^2) FT **their** area of Office B (must be area)	N9a

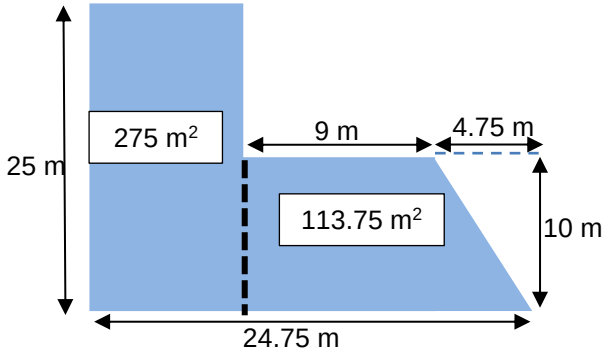
Q1b Original – Total area = 388.75 m²



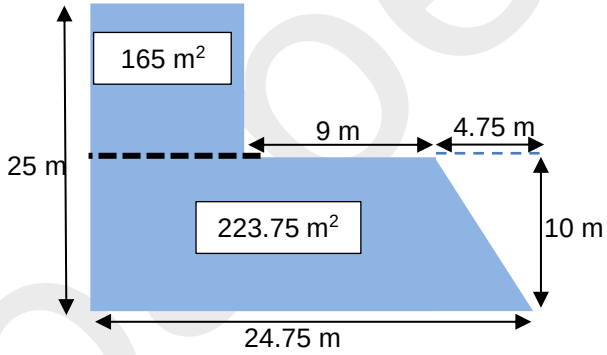
Rectangles + Triangle



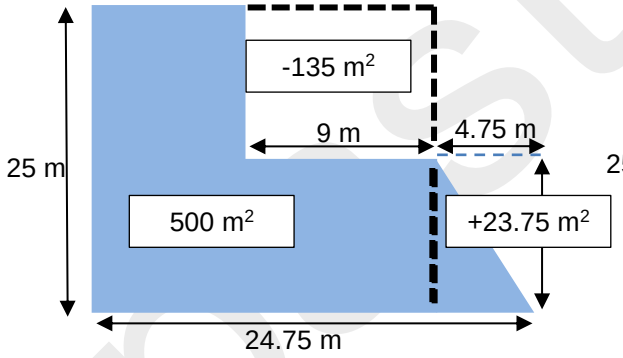
Rectangle + Trapezium



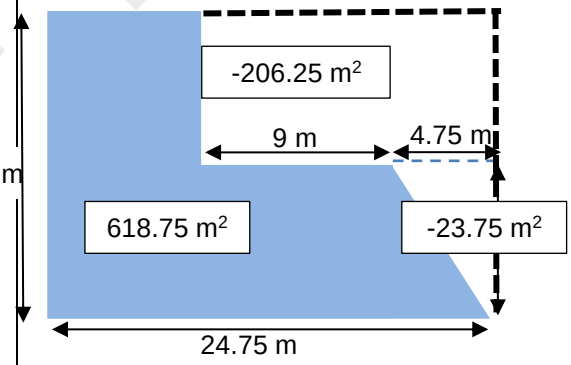
Rectangle + Trapezium



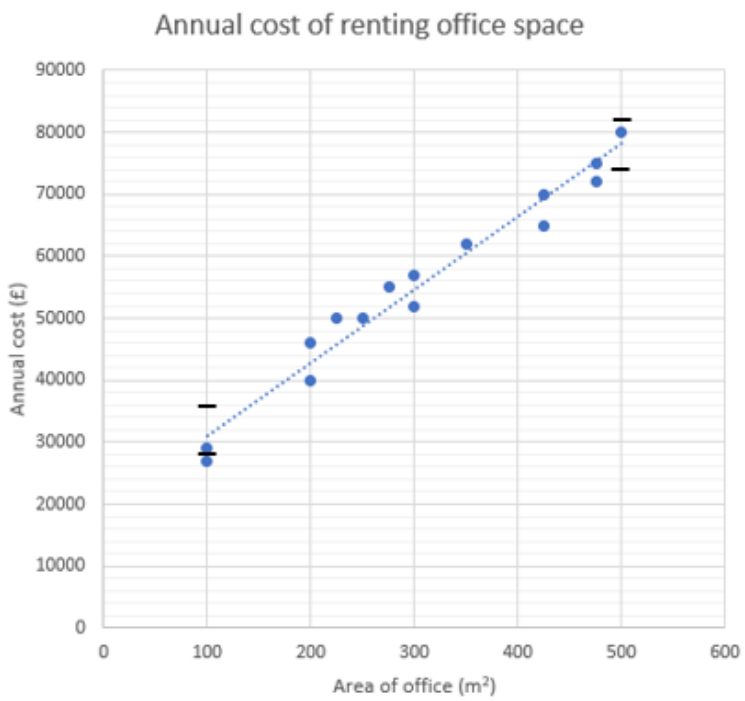
Large rectangle – small rectangle + triangle



Large rectangle – small rectangle - triangle



1 (c)	**2**	**UPS**	$\frac{4}{15}$	Award 2 marks if correct answer given	
	1		$(\frac{1}{3}+\frac{2}{5})=\frac{11}{15}$	OE fraction	N7a
	1		$(\frac{15}{15}-\frac{11}{15})=\frac{4}{15}$	OE fraction	N7a
1 (d)	**4**	**PS**	[67680, 74025]	Award 4 marks if answer within range indicated	
	1		Scatter diagram completed with an appropriate line of best fit.	Line must go through (100, [28000, 36000]) and (500, [74000, 82000])	H28
	1		(Value for 400) [64000, 70000]	If line of best fit attempted, FT their line If no line attempted, values in range imply first mark	H28
	1		1.0575 × their value from graph or (their value from graph ÷ 100) × 5.75	Any full correct method for finding 5.75%	M13a
	1		[67680, 74025]	Award for answer within range indicated	M13b
	Additional guidance				
1 (e)	**2**	**PS**	$\frac{15}{148}$	Award 2 marks if correct answer given	
	1		$\frac{1875}{18500}$		N8
	1		$\frac{15}{148}$	CAO implies 1st mark	N8
1 (f)	**1**	**PS**	15(%)	CAO	N6a

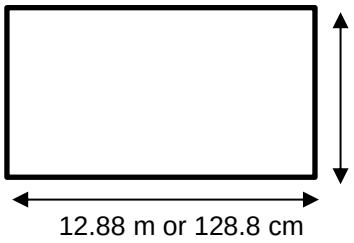


(Section B) Activity 2: Films (Calculator Test)					
Q	**Marks**	**UPS / PS**	**Process and Answer**	**Additional or Alternative Evidence (with guidance)**	**SC**
2 (a)	**2**	**UPS**	$\frac{3}{28}$	Award 2 marks if correct answer given	
	1		28 (as denominator)	Award if 0.108 seen	H26
	1		$\frac{3}{28}$	OE 0.11 or 11%	H26
2 (b)	**3**	**PS**	See below		
	1		Correct calculation of one of mean, median or range for both sets of scores	<table><tr><td></td><td>RP</td><td>TIZ</td></tr><tr><td>Mean</td><td>59.33</td><td>64.25</td></tr><tr><td>Median</td><td>60</td><td>66.5</td></tr><tr><td>Range</td><td>45</td><td>39</td></tr></table>	H25
	1		Correct calculation of a second measure for both sets of scores		H25
	1		Conclusion and explanation e.g. The Infinity Zone because it has the highest mean and median or The Infinity Zone because it has the highest mean and least variation in scores	Must be supported by calculations FT their values Award 1 mark if explanation is "Rainbow Prism because it gets the highest score of 83", but do not award previous 2 marks Accept valid comment if range is higher or lower stated	H25
2 (c)	**4**	**PS**	See below		
	Alternative method 1				
	1		101.6 ÷ 2.54 or 40	Converts width to inches	M14a
	1		**their** (40) ÷ 16 × 9 or 22.5	Calculates screen height in inches	N11a
	1		8280000	seen or implied	N1a
	1		$\frac{\text{their } 8280000}{\text{their } 40 \times \text{ their } 22.5}$ or $\frac{\text{their } 8280000}{900}$ or 9200 AND yes or no	FT their values only if correctly substituted in formula, dependent on correct methods in first two marks	N3
	Alternative method 2				
	1		(101.6 ÷ 16) × 9 or 57.15	Calculates screen height in cm	N11a

	1		101.6 ÷ 2.54 or 40 AND their 57.15 ÷ 2.54 or 22.5	Calculates width and height in inches	M14a
	1		8280000 seen or implied		N1a
	1		$\frac{\text{their } 8280000}{\text{their } 40 \times \text{ their } 22.5}$ or $\frac{\text{their } 8280000}{900}$ or 9200 AND yes or no	FT their values only if correctly substituted in formula dependent on correct methods in first two marks	N3
2 (d)	**1**	**UPS**	35 (Mb/s)	CAO	H23b
2 (e)	**2**	**UPS**	42.86(%)	Award 2 marks if correct answer given	
	1		6 ÷ 14 × 100	OE	N5b
	1		42.86(%)	CAO implies 1st mark	N9b
2 (f)	**3**	**PS**	See below		
	1		58.3(3…) (Mb/s) or 58.8(2…) (Mb/s) from use of 7000 ÷ 119) seconds)	Accept rounding to 1dp or more	M15
	1		59.5 (Mb/s) (from trial and improvement) Or 68.6 (Mb/s) (from reverse percentage calculation) Or 69.2 (Mb/s) (from reverse percentage calculation following use of 58.8(2…)	FT their speed FT their 58.3 (Mb/s) or 58.8 (Mb/s)	N5a
	1		Service J with correct working	FT their 85% dependent on first mark being correct If 49.5833 with H seen, award 2 marks	H28

Activity 3: Building a pond (Calculator Test)					
Q	**Marks**	**UPS / PS**	**Process and Answer**	**Additional or Alternative Evidence (with guidance)**	**SC**
3 (a)	**1**	**UPS**	167.5 (cm)	CAO	M18a
3 (b)	**3**	**PS**	See below		
	1		9.09 (m) or 909 (cm)	From 7.65 + 0.72 + 0.72 From 765 + 72 + 72	M20

	1		5.82 (m) or 582 (cm)	From 4.38 + 0.72 + 0.72 From 438 + 72 + 72	M20
	1		C with correct workings	Accept 5.85 (m) × 9.1 (m) or (£)130	N9a
3 (c)	**4**	**PS**	See below		
	Alternative method 1				
	1		24.1(25…) (m^3) or 24,125,040 (cm^3)	Correct volume of pond from 7.65 × 4.38 × 0.72 or 765 × 438 × 72	M20
	1		0.92 × **their** volume or 22.2 or 22.195(…) (m^3) or 22,195,036 (cm^3)	OE FT **their** volume in 1st mark Accept any full correct method to find 92% of **their** volume Correct answer implies 1st mark	N5a
	1		220 × **their** 92% volume or [4882.9079, 4884 (gallons)]	Conversion from m^3 to gallons	M14a
	1		**Their** gallons ÷ 1300 rounded up or 4 (bottles) from correct working	FT on previous mark	N11a
	Alternative method 2				
	1		24.1(25…) (m^3) or 24,125,040 (cm^3)	Correct volume of pond from 7.65 × 4.38 × 0.72 or 765 × 438 × 72	M20
	1		0.92 × **their** volume in gallons	OE FT their volume in 1st mark Accept any full correct method to find 92% of their volume in gallons Correct answer implies 1st mark	N5a
	1		220 × **their** volume	Finds volume in gallons	M14a
	1		**Their** gallons ÷ 1300 rounded up or 4 (bottles) from correct working	FT on previous mark	N11a
3 (d)	**3**	**PS**	9 Koi fish **and** 36 Goldfish	Award 3 marks if correct answer given	
	1		33.507 (m^2)	Surface area of water from 4.38 × 7.65	M17b
	1		1.2 + 4 × 0.6 or 3.6 (m^2)	Correct use of 1 : 4 ratio	N11a
	1		9 Koi fish **and** 36 Goldfish	CAO	N11a
3 (e)	**1**	**UPS**	4(°)	CAO	M22a

3 (f)	**1**	**UPS**		Drawing does not need to be to scale. Must include dimensions, with units	M21
3 (g)	**2**	**UPS**	4.6(3...) (m^3)	Award 2 marks if correct answer given	
	1		$\frac{12.88 \times 0.9 \times 0.8}{2}$		M17a
	1		4.6(3...) (m^3)	CAO	M17a

Activity 4: Energy bills (Calculator Test)					
Q	**Marks**	**UPS / PS**	**Process and Answer**	**Additional or Alternative Evidence (with guidance)**	**SC**
4 (a)	**4**	**PS**	See below		
	1		(£)152.50	Between March (£160) and April (£145)	H23a
	1		**Their** median × 6 or (£)915	FT on their value from previous mark	M13a
	1		(£)775	Find total cost for July to December	M13a
	1		((£)915 – 775) × 100 ÷ 775 or 18(.06...)(%)	FT on previous mark Any full correct method for finding **their** overpayment as a % of **their** (£)775	N6a
4 (b)	**3**	**PS**	5(%)	Award 3 marks if correct answer given	
	1		211.9(0) – 14.9(0) or 197		N1a
	1		9.85 ÷ their 197	Accept 9.85 ÷ 211.9	N5b
	1		5(%)	CAO	M13a
4 (c)	**2**	**PS**	See below		
	1		(0.32 × 365) + (0.031 × 17563)		N3
	1		(£)661.25(3) **and** yes	Must be supported by calculations	N12
4 (d)	**2**	**UPS**	See below		N4
	1		$\frac{31}{8}$	OE 3875/1000	N4

	1		387.5(%)	CAO	
4 (e)	**4**	**PS**	(£)64.98 or (£)65(.00)	Award 4 marks if correct answer given	
	1		(2.50 × 1) + (7.50 × 4) + (12.50 × 5) + (17.50 × 2) or 2.50 + 30 + 62.50 + 35 or 130	Accept alternatives to writing the calculation out, e.g. writing parts next to the table Must be consistent values, i.e. all highest or all lowest value	H24
	1		**Their** 130 ÷ 12	FT on previous task	H24
	1		(£)10.8(3…)	CAO Implies first 2 marks	H24
	1		Their (£)10.83(3…) × 6 or (£)64.98 or (£)65(.00)		M13a