LEVEL 2 FUNCTIONAL SKILLS QUALIFICATION IN MATHEMATICS

SECTION A – QUESTION AND ANSWER PAPER

NON-CALCULATOR – 30 MINUTES

SAMPLE QUESTION PAPER

Do not open this paper until you are told to do so by the invigilator.

Overall assessment marks available: **60**
Overall assessment time limit: **2 HOURS**

There are **TWO** Sections to this assessment:

- **Section A** – You **must not** use a calculator for this section.
  Total marks available: 15. Time limit: 30 minutes
- **Section B** – You can use a non-scientific calculator for this section.
- Total marks available: 45. Time limit: 1 hour and 30 minutes

For Section A you need:

- This question and answer paper
- A pen with black or blue ink
- A pencil
- A ruler

INTERNET ACCESS IS NOT PERMITTED AND YOU MUST NOT USE A CALCULATOR

- The invigilator will stop the assessment after 30 minutes. You must hand in this question and answer paper at this point.
- The invigilator will then hand out **Section B** and a non-scientific calculator. You will then have a further 1 hour and 30 minutes to complete **Section B**.

Instructions

1. Please sign and date below to confirm that your details are correct and that you have understood the instructions.
2. Read each question carefully.
3. Remember to show all your workings out clearly.
4. The number of marks available for each question is shown in brackets. Use these marks to guide you on how long to spend on each question.
5. Answer **all** questions using the space provided on this question and answer paper.
6. If you have time, check your work for **Section A** at the end. Once you have handed in this question and answer paper, you will not be able to check this again.
7. If you use extra paper, write your name, learner number and the question number you are answering on it and securely attach it to this question and answer paper.
8. This question paper consists of **8** pages.

Learner name:	
Learner number:	
Centre number:	
Signature:	
Today's date:	

Page left intentionally blank

Section A

Answer all the questions

Question 1

The table below shows the distances walked by Jay each day in a week.

Day of week	**Mon**	**Tues**	**Wed**	**Thurs**	**Fri**	**Sat**	**Sun**
Distance walked	$1\frac{1}{2}$ miles	$\frac{3}{4}$ mile	$\frac{1}{2}$ mile	$\frac{1}{3}$ mile	$\frac{1}{3}$ mile	$\frac{3}{4}$ mile	0 miles

What was the total distance Jay walked over the whole week? **(2 marks)**

Show your calculations and/or workings out here:

Write your answer in this box.

Question 2

Put these fractions in order of size, smallest to largest:

$\frac{4}{3}$ $\frac{3}{4}$ $\frac{3}{8}$ $\frac{7}{6}$ **(1 mark)**

Show your calculations and/or workings out here:

Write your answer in this box.

Question 3

Calculate 27 3696 ÷ 24? **(1 mark)**

Show your calculations and/or workings out here:

Write your answer in this box.

Question 4

Calculate the surface area of a cube when the length of side a = 15cm.

(2 marks)

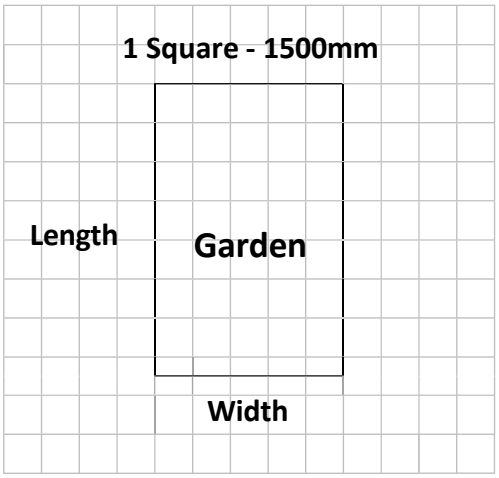
Surface area = $6a^2$

Show your calculations and/or workings out here:

Write your answer in this box.

Question 5

a) Simon is redesigning his garden. He has drawn his garden on the diagram below where 1 square = 1500mm. .



Using the grid, calculate the actual length of the garden in metres?

(2 marks)

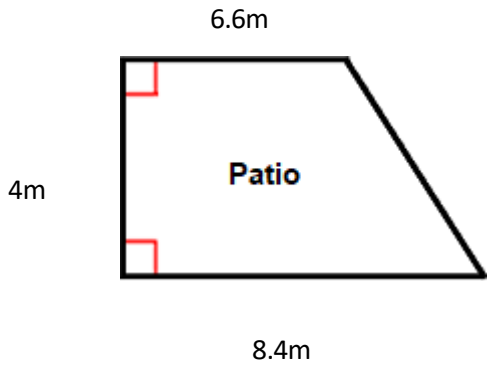
Show your calculations and/or workings out here:

Write your answer in this box.

b) Simon is planning to build a patio in his garden. The patio will have four sides.

He has drawn a sketch of the patio below.

Sketch not drawn to scale



Calculate the area of the patio. **(3 marks)**

Show your calculations and/or workings out here:

Write your answer in this box.

c) For the foundation of the patio, Simon will use a dry mixture of sand and cement.

He will need 20kg of mixture for each square metre of patio.

To make the mixture he needs to mix sand and cement in the ratio of 5:1.

Calculate how many 25kg bags of cement he will need. **(4 marks)**

Show your calculations and/or workings out here:

Write your answer in this box.

[End of Section A assessment]

LEVEL 2 FUNCTIONAL SKILLS QUALIFICATION IN MATHEMATICS

SECTION B – QUESTION AND ANSWER PAPER

CALCULATOR – 1 HOUR AND 30 MINUTES

SAMPLE QUESTION PAPER

Do not open this paper until you are told to do so by the invigilator.

Overall assessment marks available: **60**
Overall assessment time limit: **2 HOURS**

There are **TWO** Sections to this assessment:

- **Section A** – please ensure you have handed in Section A before beginning Section B.
- **Section B** – You can use a non-scientific calculator for this section.
- **Total marks available: 45. Time limit: 1 hour and 30 minutes.**

For Section B you need:

- This question and answer paper
- A pen with black or blue ink
- A pencil
- A ruler
- A non-scientific calculator

INTERNET ACCESS IS NOT PERMITTED

- You now have a further 1 hour and 30 minutes to complete **Section B**.

Instructions

1. Please sign and date below to confirm that your details are correct and that you have understood the instructions.
2. Read each question carefully.
3. Remember to show all your workings out clearly.
4. The number of marks available for each question is shown in brackets. Use these marks to guide you on how long to spend on each question.
5. Answer **all** questions using the space provided on this question and answer paper.
6. If you have time, check your work for **Section B** at the end.
7. If you use extra paper, write your name, learner number and the question number you are answering on it, and securely attach it to this question and answer paper.
8. At the end of this section (**Section B**), hand in this question and answer paper and all notes to the invigilator.
9. This question paper consists of **20** pages.

Learner name:	
Learner number:	
Centre number:	
Signature:	
Today's date:	

Page left intentionally blank

Section B

Answer all the questions

Question 6

Khalid wants to buy a two-bedroom house no further than 0.6 miles from the station.

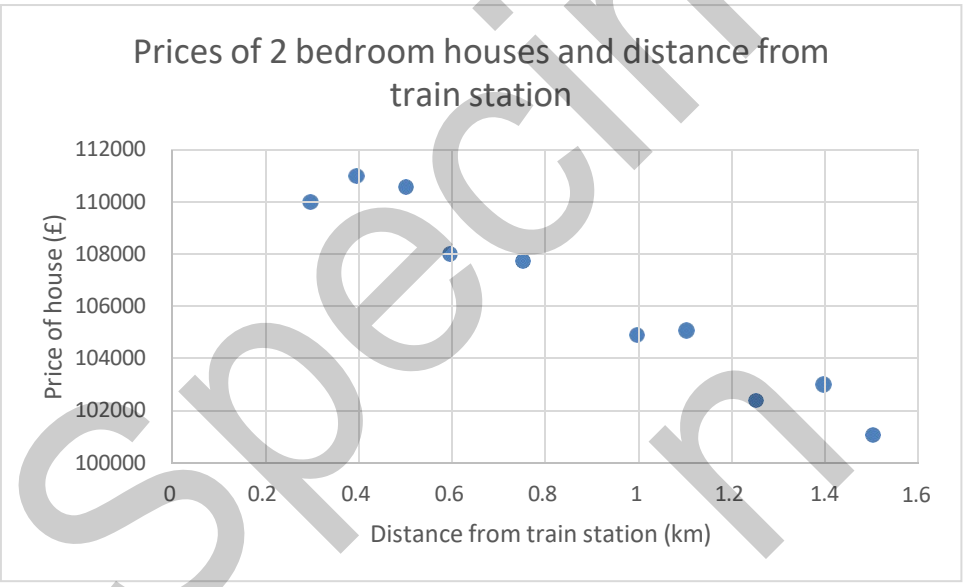
Khalid has saved a deposit of £4 875. He can afford a mortgage of 3.5 times his earnings which is £28 145 per annum.

The scatter graph shows information about the price and distance from the station of recent two-bedroom house sales in the area.

Can Khalid afford to buy a two-bedroom house within 0.6 miles of the station? Give a reason for your answer.

(5 marks)

1 mile = 1.6 km



Show your calculations and/or workings out here:

Write your answer in this box, giving a reason for your answer.

Question 7

Find the mode in the following set of numbers. **(1 mark)**

8 8.5 8 7 11 23 9 11 7.5 11 7

Write your answer in this box.

Question 8

Calculate the median of the following set of numbers. **(2 marks)**

10 10.5 11 12 15 23 9 9.5

Show your calculations and/or workings out here:

Write your answer in this box.

Page left intentionally blank

Question 9

Amy wants to catch the 10.12am train from Darlington to Chesterfield.

She needs to allow 10 minutes to buy a ticket and get to the platform.

She lives 2 miles from the station and knows that she can walk at 3mph.

At what time should she leave home?

(2 marks)

Show your calculations and/or workings out here:

Question 10

Tom is given £8 500 to go towards a deposit to buy his first house.

Tom sees these two savings accounts.

Money saver account	Bonus saver account
1.75% per year. To be added at the end of each year	Save for 3 years and receive a single bonus of 5.25%

Tom puts his money in the Money saver account.

How much more money will Tom have after 3 years compared to the Bonus saver account? **(5 marks)**

Show your calculations and/or workings out here:

Write your answer in this box.

Question 11

The formula below is used to calculate the percentage fuel saving when driving at a reduced speed compared to a higher speed.

$$F = 100 \times \left(\frac{aa-bb}{bb}\right)^2$$

F = % fuel savings
a = original average speed
b = reduced average speed

Calculate F when the speed is reduced from 60 mph to 50mph. **(3 marks)**

Show your calculations and/or workings out below:

Write your answer in this box.

Question 12

a) Raheema is concerned about the environment and is looking for ways to be more eco-friendly.

Raheema is researching the use of solar panels for her house. She has found some information on the total number of sun hours per month where she lives for 2016 and 2017.

Total sun hours per month		
	2016	2017
January	21	47
February	75	61
March	112	119
April	147	128
May	206	214
June	143	108
July	112	144
August	146	126
September	105	94
October	97	56
November	64	6
December	21	

Average sun hours per month 2017	
Mean	94.5

Raheema thinks the total number of sun hours was higher in December 2017 than in December 2016. Is she correct?

(3 marks)

Show your calculations and/or workings out here:

Write your answer in this box.

b) Which year had the greatest range of sun hours? **(1 mark)**

Show your calculations and/or workings out here:

Write your answer in this box.

c) To generate the maximum amount of electricity, a solar panel needs to face south and have a tilt angle of 30°. This will generate a maximum of 1.225kWh of electricity for each hour of sunshine. In June there were 108 hours of sunshine.

Raheema's roof faces south-west and has a tilt angle of 50°. To find out how much electricity her solar panel will produce, she needs to divide the maximum electricity that could be generated by a factor given in the table below.

Raheema usually pays £0.143 per kWh of electricity.

Tilt Angle	Facing South-west	Facing South	Facing South-east
60°	1.15	1.07	1.15
50°	1.09	1.03	1.08
40°	1.05	1.01	1.05
30°	1.04	1	1.04

How much would the electricity generated in June cost if she had to pay for it? **(3 marks)**

Show your calculations and/or workings out here:

Write your answer in this box.

Page left intentionally blank

d) Raheema finds that she can be more environmentally friendly by collecting rain water from her drain pipe, so she can use it to water her garden.

Raheema buys a cylindrical container that is 80cm in diameter and 1 metre high.

Raheema thinks the container will hold at least 100 gallons of water. Is she correct?

(5 marks)

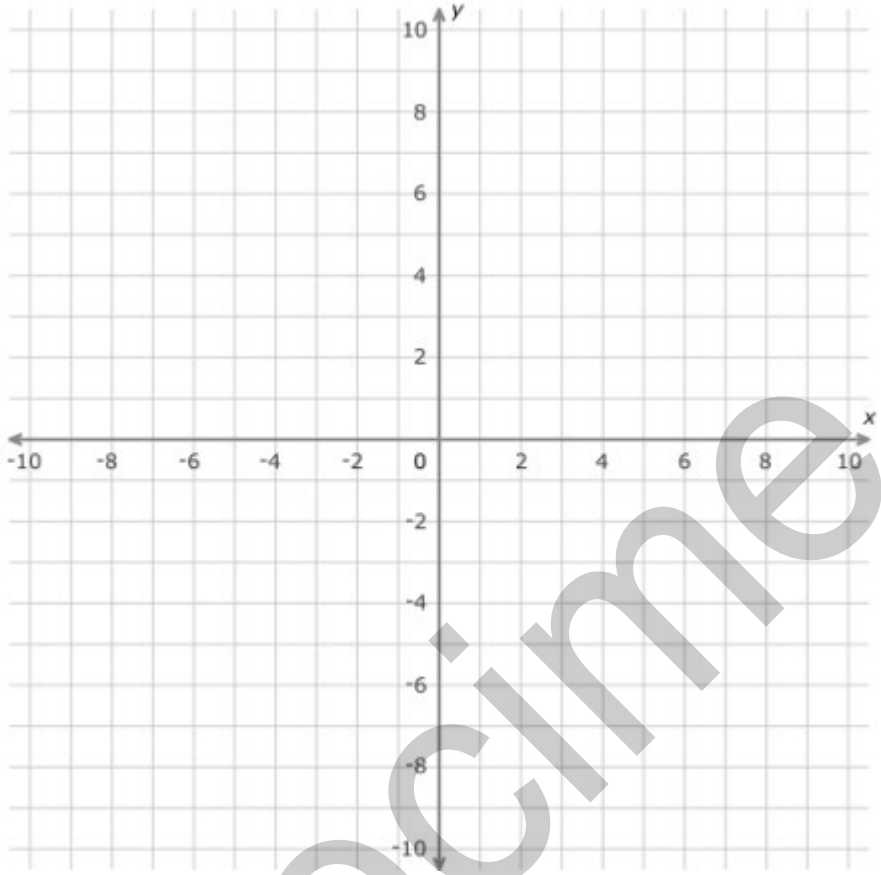
π = *3.14*

1m^3 = 219.97 gallons

Show your calculations and/or workings out here:

Explain your answer in this box.

Question 13



On the grid mark the point (4, 2). **(1 mark)**

Question 14

Give 144 as a fraction of 240 in its simplest form. **(2 marks)**

Show your calculations and/or workings out here:

Write your answer in this box.

Question 15

a) Sarah helps to organise a family fun day charity event each year.

Last year, 120 people attended the event each paying a £2.50 entry fee.

	Money taken during the event (£)	**Percentage of money taken (%)**
Entry fees		
Cake stall		19%
Bouncy castle		32%
Tombola		9%
Wheel of fortune		15%

It cost £175 to hire the Village Hall for the event and a further £85 for prizes.

How much profit did Sarah make for charity? **(4 marks)**

Show your calculations and/or workings out here:

Write your answer in this box.

b) Sarah bakes 15 identical cakes for the charity event. Each cake is circular with a radius of 80mm.

She plans to decorate each cake with a piece of ribbon around its edge.

She wants to buy an extra 12.5% to allow for overlap.

She can only buy ribbon in full metres, costing £4.95 per metre.

How much will she spend on ribbon? **(5 marks)**

Use **π** = 3.14

Show your calculations and/or workings out here:

Write your answer in this box.

c) At the charity event there is a Wheel of Fortune game for the boys and girls.

To win you need to spin the dial and land on a 'win' segment.

Wheel of Fortune

15 girls and 15 boys are each having a turn on the game today.

What is the probability today that a child who plays is a girl, **and** that she wins a prize? **(3 marks)**

Show your calculations and/or workings out here:

Write your answer in this box.

[End of Section B assessment]

LEVEL 2 FUNCTIONAL SKILLS QUALIFICATION IN MATHEMATICS

SAMPLE MARK SCHEME

TOTAL MARKS 60

Section A	Process (Task description)	Total mark	Mark allocation	Comments	PS or US	Subject content
Question 1	Correct addition of fractions	2	**1 mark:** Correct addition of two or more fractions or mixed numbers, e.g. 1½ + ¾ = 2¼		US	7b
	Correct mileage		**1 mark:** Calculate total mileage i.e. $4\frac{1}{6}$ miles	Accept 4.16, 4.17	US	7b
Question 2	Correct order	1	**1 mark:** 3/8, 5/8, ¾, 7/6, 4/3	Do not accept largest to smallest. Accept 1 1/6 and 1 1/3.	US	7a
Question 3	Correct division	1	**1 mark:** 273696 ÷ 24 = 11404		US	2
Question 4	Use formula to calculate surface area	2	**1 mark:** 15 × 15 = (225) 225 × 6 = (1350)		US	17b
	Correct answer with units		**1 mark:** 1350cm^2	Must show units	US	17b
Question 5a	Use scale accurately	2	**1 mark:** Valid method to calculate length, e.g. 7.5 × 1500 = (11250) OR 1.5 × 7.5 = (11.25) OR Other valid method.	May be implied if 11.25 seen	PS	18a
	Correct length in metres		**1 mark:** correct length shown i.e. 11.25 (m)	Units not required	PS	18a
Question 5b	Method to find area of patio	3	**2 marks:** Valid method to find the area of the trapezium e.g. ½ (8.4 + 6.6) × 4 = (3 0) OR (8.4 × 4) – (1/2 × 1.8 × 4) OR (6.6 × 4) + (1/2 × 1.8 × 4) OR Other valid method.	Award 1 mark for correct area of triangle, 3.6m^2	PS	16b
	Correct area of patio		**1 mark:** Overall area of patio, i.e. 30m²	Units required	PS	16b
Question 5c	Calculate amount of dry mixture	4	**1 mark:** Calculate total amount of dry mixture required, e.g. 30 × 20kg = 600kg.	Allow FT for their area.	PS	11a
	Understanding of ratio shown		**1 mark:** Evidence of understanding of correct use of ratio, e.g. 1 in 6 OR 1/6th OR 6 parts seen OR 20/6 OR other valid calculations of ratio.	Award if 3.33 seen Award if 100 seen	PS	11a

	Method to calculate number of bags of cement		**1 mark:** Method to calculate no of bags of cement, e.g. (600 × 1/6) ÷ 25 OR 600 ÷ 6 ÷ 25 OR 3.33 × 30 AND 99.99 ÷ 125 OR equivalent valid calculation.	Allow FT for their amount of dry mix.	PS	11a
	Correct number of bags of cement		**1 mark:** Correct answer, i.e. 4 bags.	Allow FT for their amount of dry mix	PS	11a

Section B	Process (Task description)	Total mark	Mark allocation	Comments	PS or US	Subject content
Question 6	Calculate total budget for house	5	**1 mark:** ((28 145 × 3.5) + 4 875) = (£)103 382.50	Accept 103 382.5	PS	2
	Method to convert distance		**1 mark:** 0.6 (m) × 1.6 = (0.96 km)	Accept any valid method to convert distance from miles to km Implied if 0.96 seen	PS	14a
	Interpret scatter graph		**1 mark:** Identify cost of available house at required distance from station =	Allow between 105 000 and 107 000 Award mark if implied by explanation.	PS	28b
	Correct final answer and reason		**1 mark:** No (with valid calculations) **1 mark:** for valid reason, e.g. because he needs £105 000 but he can only afford £103 382.50	Accept second mark for reason on FT if a correct reason is given based on their calculations.	PS	28b
Question 7	Find the mode	1	**1 mark**: Correct mode, i.e. 11		US	23b
Question 8	List in order of size	2	**1 mark**: Correct order i.e. 9 9.5 10 10.5 11 12 15 23		US	23a
	Correct median		**1 mark**: Correct median, i.e. 10.75.		US	23a
Question 9	Calculate time taken to walk	2	**1 mark:** Correct calculation of the time to walk to the station, e.g. 2 miles at 3mph = 2 ÷ 3 × 60 = 40 mins	Accept 0.66 hours.	PS	15a
	Correct time for leaving house		**1 mark:** Correct time to leave home, i.e. 9.22(am)		PS	15a

Question 10	Method to calculate compound interest	5	**1 mark**: Correct calculation of interest 1.75% of £8500 e.g. 0.175 × 8500 = (£)148.75 for Money Saver	Award if 8648.75 or 8954.10 seen	PS	13a
	Correct interest after 3 years for Money Saver		**2 marks**: Correct calculation for compound interest used to find Money Saver balance after 3 years, e.g. Correct amount after 1 year i.e. 8500 + 148.75 = (£)8648.75 then Correct amount after 2 years i.e. 8648.75 + 151.35 = (£)8800.10 then Correct amount after 3 years i.e. 8800.10 + 154.00 = (£)8954.10	Award 1 mark for correct balance of Money Saver account after 2 years. Award 2 marks if 8954.10 seen. Award 1 mark for correct method. Allow FT for their interest. Units not required.	PS	13a
					PS	13a
	Correct interest for Bonus Saver		**1 mark:** Correct answer for Bonus Saver i.e. (£)8946.25	Units not required	PS	13b
	Difference in total balances		**1 mark**: £7.85		PS	13a
	Process (Task description)	**Total mark**	**Mark allocation**	**Comments**	**PS or US**	**Subject content**
Question 11	Correct substitution	3	**1 mark**: Correct substitution into formula.		US	3
	Correct answer to part in brackets		**1 mark**: 0.2 OR 1/5 OR 1/25 seen.	May be implied if 4 seen	US	12
	Correct % given		**1 mark**: 4	% sign not required	US	12
Question 12a	Method to calculate sun hours in 2017	3	**1 mark:** Valid method to calculate 2017 sun hours from the given mean, e.g. 94.5 × 12 months = 1134	May be implied if 31 seen.	PS	25
	Find total sun hours except Dec 2017		**1 mark:** Add 47 + 61 + 119 + 128 + 214 + 108 + 144 + 126 + 94 + 56 + 6 (= 1103)	May be implied if 31 seen.	PS	25
	Subtraction		**1 mark:** 1134 - 1103 =31 OR Other valid calculation method AND 'Yes, Raheema is correct'	Do **not** award if 31 not seen.	PS	25

Question 12b	Correct year identified by comparing ranges	1	**1 mark:** 2017 E.g. 206 - 21 = 185 AND 214 - 6 = 208	Do **not** award if no supporting calculations of range.	PS	25
Question 12c	Correct kWh calculated Correct kWh per month Correct cost of electricity	3	**1 mark**: Correct number of kWh i.e. 1.225 ÷ 1.09 = 1.123853211009174	Award for rounding to 2 or 3 dp, i.e. 1.12 OR 1.124	PS	10d
			1 mark: Correct number of kWh in June, i.e. 1.123853211009174 × 108 = 121.376146789	Allow FT from their number of kWh Allow FT for rounded figures, eg 1.124 × 108 = 121.392 1.12 × 108 = 120.96	PS	10c
			1 mark: Correct cost of electricity, i.e. 121.376146789 × 0.143 = (£)17.35 OR £17.36	Allow FT for rounded figures to 2 or 3 dp, eg 120.96 × 0.143 = (£)17.29 OR 17.30 121.392 × 0.143 = (£)17.36 121.4 × 0.143 = 17.36 Allow for rounding. Do not award for more or less than 2 dp.	PS	10c
Question 12d	Method to calculate volume Correct volume	5	**1 mark**: Valid method 3.14 × 0.4 × 0.4 × 1 = (0.5024)	Must be consistent units. Do **not** award for use of diameter.	PS	17a
			1 mark: Correct answer = 0.5024 Accept 0.502 – 0.503 *Can use range of 3.14 to 3.142 for pi.*	May be implied if 0.5024 seen.	PS	17a
	Method to convert volume to gallons Correct number of gallons		**1 mark:** Method to convert volume to gallons, e.g. = 0.5024 × 219.97	Allow FT for their volume. May be implied if 110.51 gallons seen.	PS	14c
			1 mark: Correct number of gallons = 110.51 (gallons)		PS	14c
	Valid explanation given		**1 mark:** Valid explanation, e.g. "'Yes, she is correct, the container will hold more than 100	Accept other valid answers. Do not accept 'yes' without	PS	17a

			gallons".	supporting calculations. Allow FT for incorrect volume or number of gallons.		
	Process (Task description)	**Total mark**	**Mark allocation**	**Comments**	**PS or US**	**Subject content**
Question 13	Plot coordinate on grid	1	**1 mark**: Point plotted correctly on graph		US	19
Question 14	Calculate the decimal	2	**1 mark:** correct calculation of decimal, i.e. (144 ÷ 240 = 0.6) converted to 6/10		US	8
	Convert to fraction in simplest form		**1 mark**: 3/5		US	8
Question 15a	Correct entry fees and percentage	4	**1 mark:** Complete entry fees in table, i.e. £300 and 25%	May be implied if 1200 or 228 or 384 or 108 or 180 seen.	PS	11b
	Calculate the ratio		**1 mark:** Find appropriate ratio, i.e. £:% as 300:25 OR 12:1 or 300 × 4.	May be implied if 1200 or 228 or 384 or 108 or 180 seen.	PS	11b
	Calculate total income		**1 mark:** Find total income, i.e. (£) 1200.	Units not required.	PS	11b
	Calculate total profit		**1 mark:** Calculate total profit, i.e. 1200 – 175 – 85 = (£) 940	Allow FT using their total income figure. Units not required.	PS	11b
Question 15b	Correct circumference	5	**1 mark:** Correct circumference of a cake, e.g. 2 × 80 × 3.14 = 502.4mm, accept 502 - 503mm	May be implied if 502-503 seen. May use metres or cm eg 8cm or 0.08m	PS	16a
	Correct ribbon length for 15 cakes		**1 mark:** Calculate ribbon length for 15 cakes, i.e. 502.4 × 15 = 7536mm	Alt method 12.5% first then × 15	PS	16a
	Calculate extra 12.5%		**1 mark:** Calculate 112.5%, e.g. 7536 × 1.125 OR equivalent = 8478(mm) Accept 8475 – 8481(mm).	Award if correct answer seen	PS	6
	Rounded length Calculate cost		**1 mark:** 9(m) required	Units not required. Award if correct answer seen	PS	6

			1 mark: correct calculation of cost, e.g. 9(m) × £4.95 = £44.55		PS	6
Question 15c	Probability of winning a prize and of spin made by a girl	3	**1 mark:** Correct probability of a spin winning a prize given, e.g. 1/3 OR 4/12 **AND** Correct probability of a spin being made by a girl, i.e. ½ or 0.5	May be implied if 1/6th seen.	PS	27a
	Method to calculate probability of 2 events		**1 mark:** Method to calculate probability of a person being a girl and winning a prize, i.e. 1/3 × ½ = OR 0.5 × 0.33 =	Allow FT for their two individual probabilities. May be implied if 1/6th seen.	PS	26
	Correct probability of 2 events		**1 mark** - Correct probability of 2 events, i.e. 1/6 OR 0.166 OR 16.6%	Allow FT for their two individual probabilities.	PS	26

Annotation notes:

Annotation	Meaning
US	Underpinning skills
PS	Problem solving skills
FT	Follow through
(…)	Information that is not required for the mark point

Functional Skills in Mathematics Level 2 – Mapping matrix

Paper number (Sample Assessment Material)	**RFSML2SAM01**									
Number	**T1**		**T2**		**T3**		**T4**		**Total**	**%**
Total number of marks per task	**15**		**15**		**15**		**15**			
Problem Solving (PS) maximum marks **Underpinning skills (US) maximum marks**	**9** **6**		**12** **3**		**12** **3**		**12** **3**		**Total no of sub-elements mapped = 28**	
Tick the boxes to confirm that T2, T3 and T4 contain a 5-8 mark question reflecting a multi-step calculation.			✓		✓		✓			
Level 2 Subject Content	**PS**	**US**	**PS**	**US**	**PS**	**US**	**PS**	**US**		
1a. Write positive and negative numbers of any size										
1b. Order and compare positive and negative numbers of any size										
2. Carry out calculations with numbers up to one million including strategies to check answers including estimation and approximation		1(Q3)	1(Q6)						2	
3. Evaluate expressions and make substitutions in given formulae in words and symbols						1(Q11)			1	
4. Identify the equivalence between fractions, decimals and percentages										
5a. Work out percentages of amounts										
5b. Express one amount as a percentage of another										
6. Calculate percentage change (any size increase and decrease), and original value after percentage change							3(Q15b)		3	
7a. Order and compare amounts or quantities using proper and improper fractions and mixed numbers		1(Q2)							1	
7b. Add amounts or quantities using proper and improper fractions and mixed numbers		2(Q1)							2	
7c. Subtract amounts or quantities using proper and improper fractions and mixed numbers										
8. Express one number as a fraction of another								2 (Q14)	2	
9a. Order and compare decimals										
9b. Approximate decimals										
10a. Add decimals up to three decimal places										
10b. Subtract decimals up to three decimal places										
10c. Multiply decimals up to three decimal places					2(Q12c)				2	

10d. Divide decimals up to three decimal places					1(Q12c)				1	
11a. Calculate using ratios	4(Q5c)								4	
11b. Calculate using direct proportion							4(Q15a)		4	
11c. Calculate using inverse proportion										
12. Follow the order of precedence of operators, including indices						2(Q11)			2	
Total: Number and number system									**24**	**40**
13a. Calculate compound interest			4(Q10)						4	
13b. Calculate percentage increases, decreases and discounts including tax and simple budgeting			1(Q10)						1	
14a. Convert between metric and imperial units of length, using i) a conversion factor ii) a conversion graph			1(Q6)						1	
14b. Convert between metric and imperial units of weight using i) a conversion factor ii) a conversion graph										
14c. Convert between metric and imperial units of capacity using i) a conversion factor ii) a conversion graph					2(Q12d)				2	
15a. Calculate using compound measures including speed			2(Q9)						2	
15b. Calculate using compound measures including density										
15c. Calculate using compound measures including rates of pay										
16a. Calculate perimeters including triangles and circles and composite shapes including non-rectangular shapes (formulae given except for triangles and circles)							2(Q15b)		2	
16b. Calculate areas of 2-D shapes including triangles and circles and composite shapes including non-rectangular shapes (formulae given except for triangles and circles)	3(Q5b)								3	
17a. Use formulae to find volumes of 3-D shapes including cylinders (formulae to be given for 3-D shapes other than cylinders)					3(Q12d)				3	
17b. Use formulae to find surface areas of 3-D shapes including cylinders (formulae to be given for 3-D shapes other than cylinders)		2(Q4)							2	
18a. Calculate actual dimensions from scale drawings	2(Q5a)								2	
18b. Create a scale diagram given actual measurements										
19. Use coordinates in 2-D, positive and negative, to specify the positions of points								1(Q13)	1	
20. Understand and use common 2-D representations of 3-D objects										

21. Draw 3-D shapes to include plans and elevations										
22. Calculate values of angles and/or coordinates with 2-D and 3-D shapes										
Total: Measure, shape and space									**23**	**38**
23a. Calculate the median of a set of quantities				2(Q8)					2	
23b. Calculate the mode of a set of quantities				1(Q7)					1	
24. Estimate the mean of a grouped frequency distribution from discrete data										
25. Use the mean, median, mode and range to compare two sets of data					3(Q12a) 1(Q12b)				4	
26. Work out the probability of combined events, including using diagrams and two-way tables							2(Q15c)		2	
27a. Express probabilities as fractions							1(Q15c)		1	
27b. Express probabilities as decimals										
27c. Express probabilities as percentages										
28a. Draw scatter diagrams										
28b. Interpret scatter diagrams			3 (Q6)						3	
28c. Recognise positive and negative correlation										
Total: Handling data									**13**	**22**
Total Mark PS/US Total %	9	6	12	3	12	3	12	3	60	100

Problem solving and decision making requirements: Indicate the question numbers where this is required	Task 1		Task 2		Task 3		Task 4		
Read, understand, and use mathematical information and mathematical terms	Q5a, 5b, 5c		Q6, 10		Q12a, 12b, 12c, 12d		Q15a, 15b, 15c		
Address individual problems based on a combination of the knowledge and/or skills from the mathematical content areas (number and the number system; measures, shape and space; information and data). Some problems draw upon a combination of all three mathematical areas and require learners to make connections between those content areas.	Q5c		Q6, 10		Q12c, 12d		Q15a, 15b		
Use mathematical information and terms in a problem	Q5a, 5b		Q6, 10		Q12a, 12b, 12c, 12d		Q15a, 15b, 15c		
Use knowledge and understanding to a required level of accuracy	Q5a, 5b, 5c		Q6, 10		Q12c, 12d		Q15a, 15b		
Identify suitable operations and calculations to generate results	Q5a, 5b, 5c		Q6, 10		Q12a, 12b, 12c, 12d		Q15a, 15b, 15c		
Analyse and interpret answers in the context of the original problem			Q6, 10		Q12a, 12c, 12d		Q15a, 15b, 15c		
Check the sense and reasonableness of answers	Q5a, 5b, 5c		Q6, 10		Q12d, 12e		Q15a, 15b		
Present and explain results clearly and accurately demonstrating reasoning to support the process and show consistency with the evidence presented.			Q6		Q12d				