

SKILLSFIRST LEVEL 2 FUNCTIONAL SKILLS QUALIFICATION IN MATHEMATICS

SECTION B - QUESTION AND ANSWER PAPER (RFSML2SAM01)

CALCULATOR – 1 HOUR AND 30 MINUTES

SAMPLE ASSESSMENT MATERIAL

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** includes Task 2, 3 and 4. 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
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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 task and 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.
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Learner full name:

Skillsfirst Learner number: Centre number:

Learner signature: Date:

Section B

Task 2 (15 marks)

Question 6

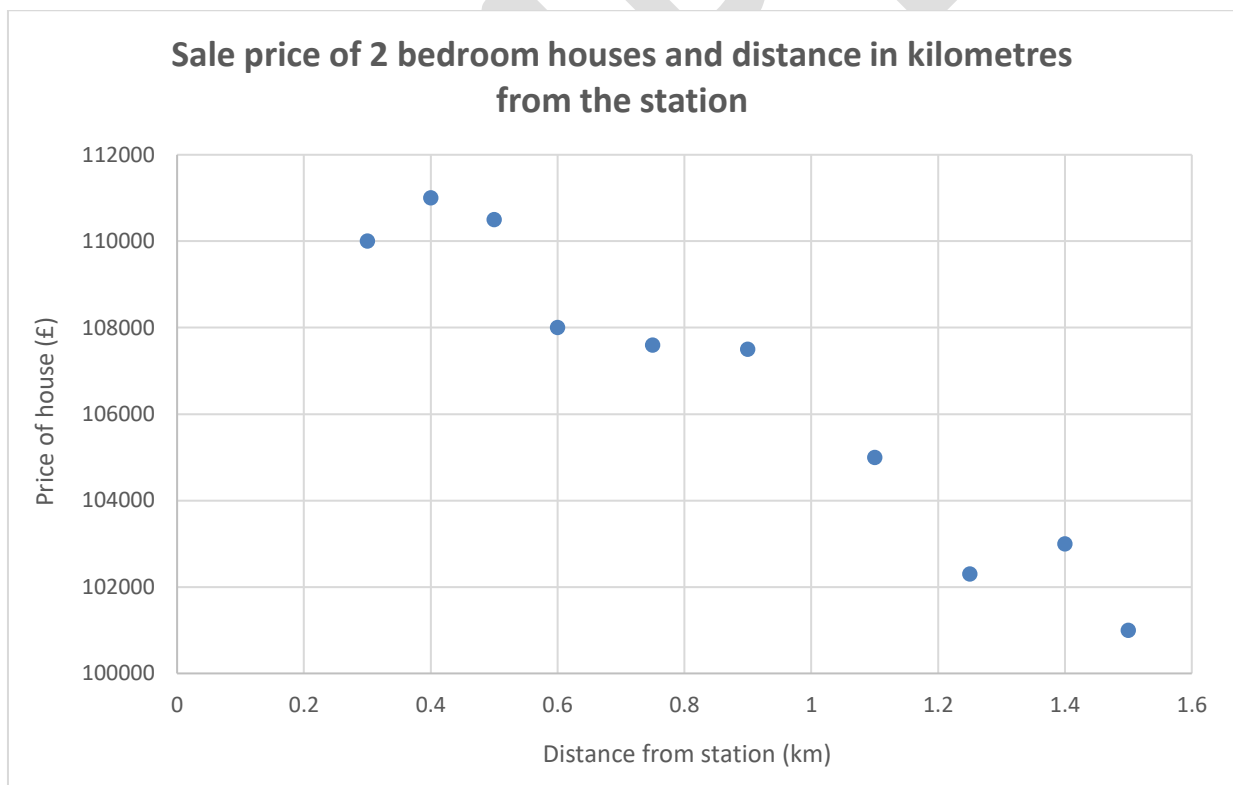
Khalid wants to buy a two-bedroom house no further than 0.6 miles from the station.

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.

Question 9

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

She needs to allow 10 mins 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 in the space below:

Write your answer in this box.

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.

Task 3 (15 marks)

Question 11

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

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

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

Calculate F when the speed is reduced from 60 mph to 50 mph. (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 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.

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SAMPLE

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?

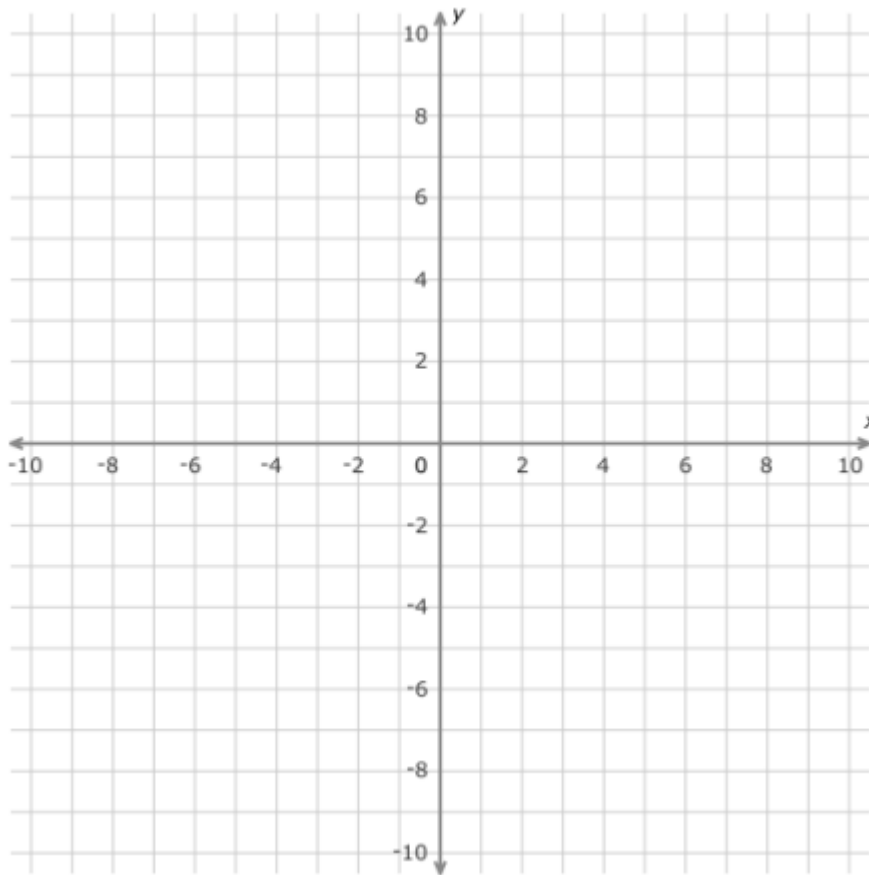
(5 marks)

$$\pi = 3.14$$

$$1\text{m}^3 = 219.97 \text{ gallons}$$

Show your calculations and/or workings out here:

Explain your answer in this box.

Task 4 (15 marks)**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)

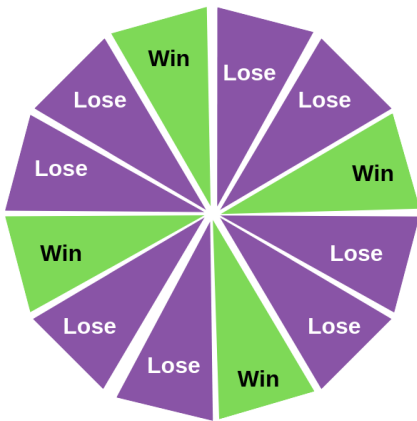
Use $\pi = 3.14$

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 assessment

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