OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

LEVEL 2 FUNCTIONAL SKILLS MATHEMATICS 09866

TASK AND ANSWER BOOKLET

This assessment may only be taken within these dates:
14 – 18 JANUARY 2013 **TIME: 1 HOUR 30 MINUTES**

INSTRUCTIONS

Fill in all the boxes below. Make sure your personal details are entered correctly. Use BLOCK LETTERS.

Your surname or family name

Your first forename (if any)

Your second forename (if any)

Date of birth

Centre name

Centre number

Your OCR candidate number

YOU NEED

- This Task and Answer Booklet
- The Resource Booklet for this test
- A pen with black ink
- A calculator
- A ruler

YOU HAVE 1 HOUR AND 30 MINUTES TO COMPLETE THE 3 TASKS

- Read the tasks inside this booklet carefully before starting the tasks
- Write your answers in this booklet
- For each task, clearly show how your working leads to your answer
- When you have finished, hand this booklet to the supervisor

FOR EXAMINER USE ONLY		
Task No	**Mark**	**Total**
1a i) ii)	/5	
1b	/4	
1c i) ii)	/9	
Checking	/2	**/20**
2a i) ii) iii)	/5	
2b	/6	
2c i) ii)	/7	
Checking	/2	**/20**
3a	/3	
3b	/3	
3c	/2	
3d	/8	
3e	/2	
Checking	/2	**/20**
Total	**/60**	

Ofqual Qualification Reference Number: 500/8908/0 **H735/JAN13**

This document consists of 11 printed pages and 1 blank page

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Task 1 – Trains and Planes

You will need the information on pages 2 and 3 of the Resource Booklet.
You must show clearly how your working leads to each answer.
2 marks are available in each task when you show you have checked your work.

Mel lives in Derby.
She wants to visit a friend in Paris.

She looks at budget airlines on the internet.
Mel chooses three possible airports to fly from.
These are Liverpool, Manchester and London Heathrow.

She jots down the prices of return fares on the dates she wants.

(a) (i) What is the cheapest flight to Paris that Mel has found?

(1 mark)

(ii) **On average** which airport is the cheapest to fly from?
Show how you have worked out your answer.

(4 marks)

Examiner use only (Part a)

Mel has to travel from Derby to the airport she chooses.

(b) Which airport would you recommend she uses?
Give the reasons for your choice.

(4 marks)

Examiner use only (Part b)

Mel will fly in an Airbus A319. She is worried about her carbon footprint.

(c) **(i)** How much CO_2 per kilometre does an Airbus A319 produce **per person**?
Write down any assumptions you make.

(5 marks)

(ii) What is Mel's total carbon footprint for her **one way** trip from Derby to Paris? Show your working and any assumptions you make.

(4 marks)

Examiner use only (Part c)

Checking (2 marks)

Examiner use only (Checking)

Task 2 – Rainbow Fish

You will need the information on page 4 of the Resource Booklet.
You must show clearly how your working leads to each answer.
2 marks are available in each task when you show you have checked your work.

Callum wants to buy a new aquarium to breed tropical rainbow fish.
He sees a For Sale card in the local supermarket.
The card is shown in the Resource Booklet on page 4.

Callum's guide to keeping fish states: *"before adding fish - fill your aquarium with water until the level is 2 cm below the top of the sides"*

(a) (i) Calculate the volume of water in this aquarium when it is ready for the fish to be added.

(2 marks)

(ii) Calculate the weight of the water in the aquarium.

(1 mark)

Callum's friend Daljit says …

A full aquarium that size will have at least half a ton of water in it.

(iii) Is Daljit correct?

Support your answer with calculations.

(2 marks)

Examiner use only (Part a)

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(b) Callum needs to work out how many rainbow fish he can put in the aquarium. If there are too many, the fish may fight or catch diseases.

He looks in some books and finds these two rules:

HOW TO FIND THE SAFE TOTAL LENGTH OF FISH TO KEEP IN AN AQUARIUM

Rule 1 - **Surface area rule –** 1 cm length of fish for every 12 cm^2 of aquarium water surface area (the surface area is the area of water in contact with the air)

Rule 2 - Volume rule - 1 cm length of fish for every 1.8 litres of aquarium water

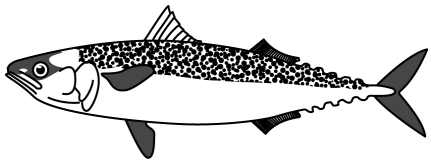
The answer to the calculation for each rule gives the total length of all the fish the aquarium will hold.

Callum uses the rule that gives the smaller safe total length of fish for this aquarium. Show which rule he should choose.

(6 marks)

Examiner use only (Part b)

(c) Callum will buy young rainbow fish but there must be enough space for them when they become adults.



He phones some people in the local Aquatic Fish Club, who tell him the lengths of some of their adult rainbow fish. The lengths are shown on page 4 in the Resource Booklet.

They give him another rule, rule 3, for working out the number of fish he can keep.

$$\text{Number of fish} = \frac{\text{surface area of water}}{40 \times \text{average length of fish}}$$

(i) How many fish will Callum be able to keep in his aquarium using rule 3?

Explain how you arrive at your answer. Show your calculations and write down any assumptions you make.

(5 marks)

(ii) Callum will use the rule that gives the smallest number of fish for this aquarium. Which of the three rules gives the smallest number of fish?

(2 marks)

Examiner use only (Part c)

Checking (2 marks)

Examiner use only (Checking)

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Task 3 – Baked Potatoes

You will need the information on page 5 of the Resource Booklet.
You must show clearly how your working leads to each answer.
2 marks are available in each task when you show you have checked your work.

Amy saw this in a cafe.

Amy's aunt Emma runs a sandwich shop.
She agrees to let Amy have a space in her shop to sell baked potatoes.

Before Amy starts she works out her costs and the possible number of customers.

Emma's shop is open 5 days a week serving, on average, 800 customers per day.

(a) Amy asks some of the shop's customers if they would buy baked potatoes.
Of the 40 people she asked 11 said they would.

Estimate the number of customers per day Amy might expect to buy a baked potato.
Explain how you arrived at your answer.

This is the figure Amy will use in her plans.

(3 marks)

Examiner use only (Part a)

(b) Baking potatoes are sold in 56 kg sacks that cost about £45 each.
Each potato weighs about 250 g.

Make a rough estimate of how much it will cost Amy to buy a week's supply of potatoes.

Show your working clearly and write down any assumptions you make.

(3 marks)

Examiner use only (Part b)

(c) Amy decides to buy this baked potato oven.
She spreads this cost over a year.

Calculate roughly how much this will work out per week.

(2 marks)

Examiner use only (Part c)

Amy will pay Emma £20 per week for electricity, heating and insurance.

Fillings for baked potatoes will cost about 20p per potato.

Amy has now to work out her total costs.

I'll need boxes to put the potatoes in, a fork for each potato, filling and finally some potatoes! Plus there's the weekly cost of the oven and I have to pay Emma £20 a week.

You will need page 5 of the Resource Booklet

(d) Work out Amy's **total** costs for a week.
Show all your working and any assumptions you might make.

(8 marks)

Examiner use only (Part d)

(e) Amy plans to sell the baked potatoes with fillings for £2.50 each.

How much profit or loss will she expect to make in a week?

(2 marks)

Examiner use only (Part e)

Checking (2 marks)

Examiner use only