OCR
Oxford Cambridge and RSA

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

LEVEL 2 FUNCTIONAL SKILLS MATHEMATICS 09866

TASK AND ANSWER BOOKLET PRACTICE PAPER 1

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

At the beginning of this booklet you will find tear off Resource Documents. You will need to refer to these documents to complete the tasks.

You will also need:

- a pen with black ink
- a calculator
- a ruler

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

For each task, make sure that you:

- read the questions carefully before starting
- write your answers in this booklet
- clearly show how your working leads to your answers

2 marks are available in each task when you show you have checked your work.

When you have finished, hand this booklet and all the Resource Documents to the supervisor.

Ofqual Qualification Reference Number: 500/8910/9

FOR EXAMINER USE ONLY		
Question No	**Mark**	**Total**
TASK A		
1	/6	
2	/8	
3	/6	**/20**
TASK B		
1	/2	
2	/6	
3	/5	
4	/7	**/20**
TASK C		
1	/5	
2	/8	
3	/7	**/20**
Total	**/60**	

This document consists of 28 pages. Any blank pages are indicated.

  Registered Company Number: 3484466 **[Turn over**

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RESOURCE DOCUMENTS

The Resource Documents on pages 5, 7, 9 and 11 contain information to help you to answer the tasks in this booklet.

- The resource documents are perforated along the left hand side, so they can be removed from the task and answer booklet.
- Your supervisor will instruct you when to remove the resource documents, before you start the assessment.
- Please fold pages 5, 7, 9 and 11 along the perforated strip before removing from the task and answer booklet.

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TASK A – DIY *SLIME*

RESOURCE DOCUMENT 1

How to make your own *Slime*

Materials:

- Cornflour
- Water
- Food colouring
- Large bowl and spoon

What to do

Put the cornflour into the large bowl.
Mix in water to the cornflour.
The ratio of cornflour to water by volume should be 2:1 so
to make 3 cups of Slime you need to mix 2 cups of cornflour with 1 cup of water.

If you want coloured *Slime* add some food colouring to your water.
Use 5 drops of food colouring per litre of *Slime*.

Remember

a litre is 1000 ml

a drop is about 0.05 ml

1 ml of cornflour weighs 0.5 g

1 g of cornflour has a volume of 2 ml

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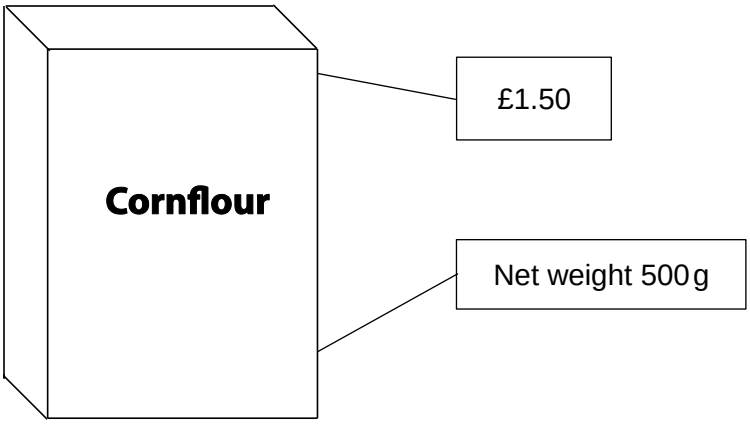
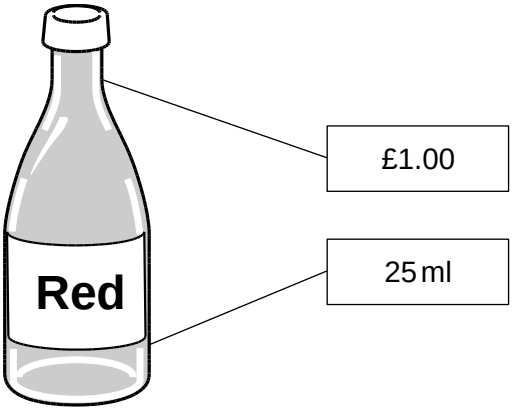
TASK A – DIY *SLIME*

RESOURCE DOCUMENT 2





Food colouring
All colours are the same price

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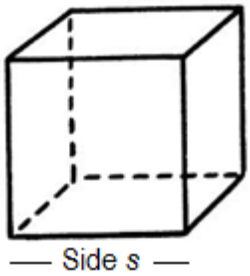
TASK B – CANDLES

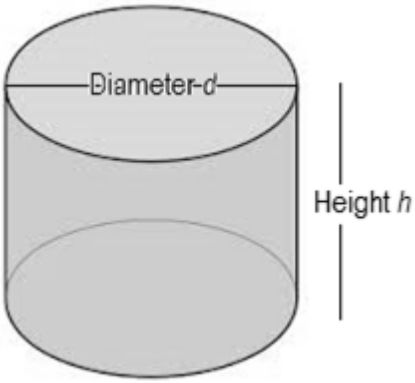
RESOURCE DOCUMENT 1

Approximate volumes (V) of some solids

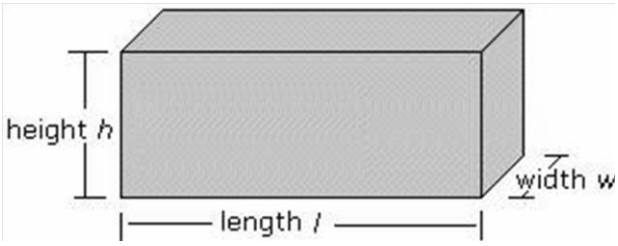
Cube
$V = s^3$



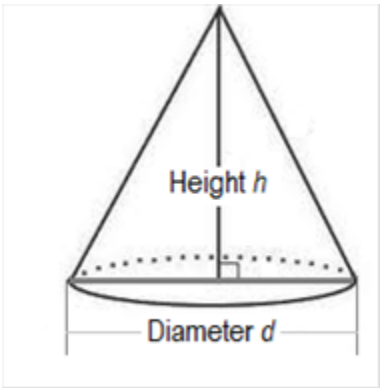
Cylinder
$V = 0.8d^2h$



Cuboid
$V = lwh$



Cone
$V = 0.3d^2h$



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TASK C – CHIPS

RESOURCE DOCUMENT 1

Nutritional Profile: Chips, as sold in fish and chip shops, average values, per 100g

Calories (kcal):	239.0
Protein (g):	3.2
Carbohydrate (g):	30.5
Total fat (g):	12.4
Saturated fat (g):	1.1
Fibre (g):	2.2

Ideally food should be low in saturated fat, calories and carbohydrate but high in protein and fibre.

According to *NHS Choices*

- The average man should eat no more than 30 g of **saturated fat** a day.
- The average woman should eat no more than 20 g of **saturated fat** a day.

An adult needs about 50 g of protein a day

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TASK AND ANSWER PAGES

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TASK A – DIY *SLIME*

You will need Task A Resource Documents 1 and 2.

Roger works at a pre-school unit.
One of Roger's jobs is to order *Slime*.
Slime is a soft sticky substance that children play with.

On average the unit has 20 children each day.
The unit is open 5 days a week for 50 weeks a year.

Each child playing with *Slime* needs about 1 litre of *Slime*.
About a quarter of the children play with *Slime* at any one time.

Q1 **(a)** How much *Slime* is needed at any one time?

(2 marks)

A 500 ml tub of *Slime* costs £2.60.
It is thrown away after two months.

(b) How much does the unit spend on *Slime* in a year?
Show all your working and any assumptions you make.

(4 marks)

Examiner use only (Q1)

Roger decides to make his own *Slime*.
He finds a recipe for *Slime* on the internet.

Q2 **(a)** How much will the food colouring cost for one litre of *Slime*?
Show your working and any assumptions you make.

(4 marks)

(b) How much will the cornflour cost to make one litre of *Slime*?

(4 marks)

Examiner use only (Q2)

Q3 In one year, can Roger save money by making the *Slime* himself?
Show your calculations.

(4 marks)

Examiner use only (Q3)

Checking (2 marks)

Examiner use only (Checking)

Total marks

Examiner use only (Total)

END OF TASK A

TASK B – CANDLES

You will need Task B Resource Document 1.

Amy makes candles to sell at craft fairs.

First she melts slabs of wax.

She pours the wax into candle moulds which have wicks in.

When the wax has cooled down the candles are ready.

The wax slabs are cuboids measuring 22 cm by 15 cm by 6 cm.

Q1 What is the volume of one wax slab?

_____

_____

_____

_____

(2 marks)

Examiner use only (Q1)

Amy has some new cylindrical candle moulds.
Their sizes are given in **inches**.
The candles made in these moulds have a diameter of 3 inches and a height of $5\frac{1}{2}$ inches.
Amy knows that one inch is approximately 2.5 centimetres.

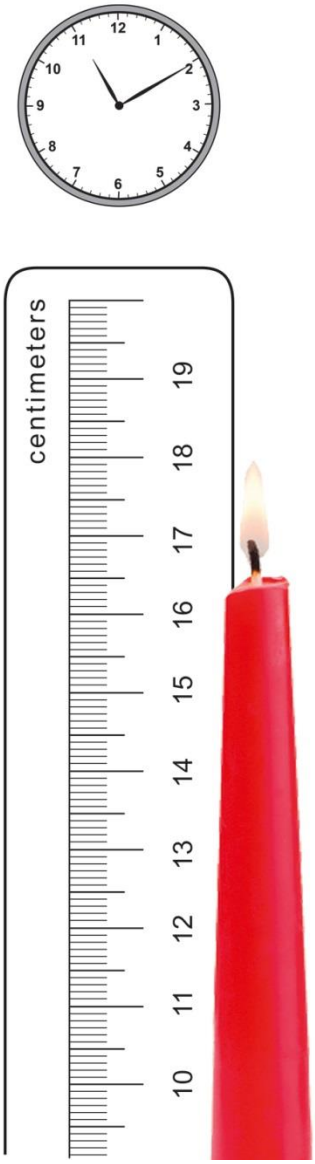
Q2 How many of the cylindrical candles can Amy make from one slab of wax?
Show all the stages in your calculations.

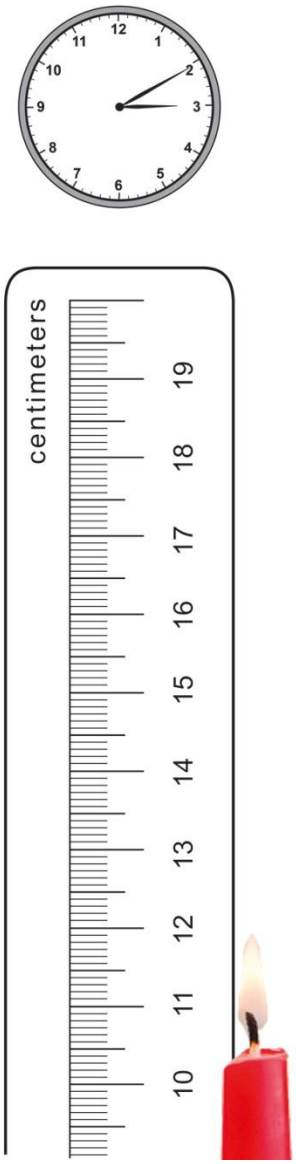
(6 marks)

Examiner use only (Q2)

Most customers want to know how long their candles will burn for.
Amy always burns a new type of candle to find this out.

These pictures show the height of one of Amy's candles at two different times on one day.



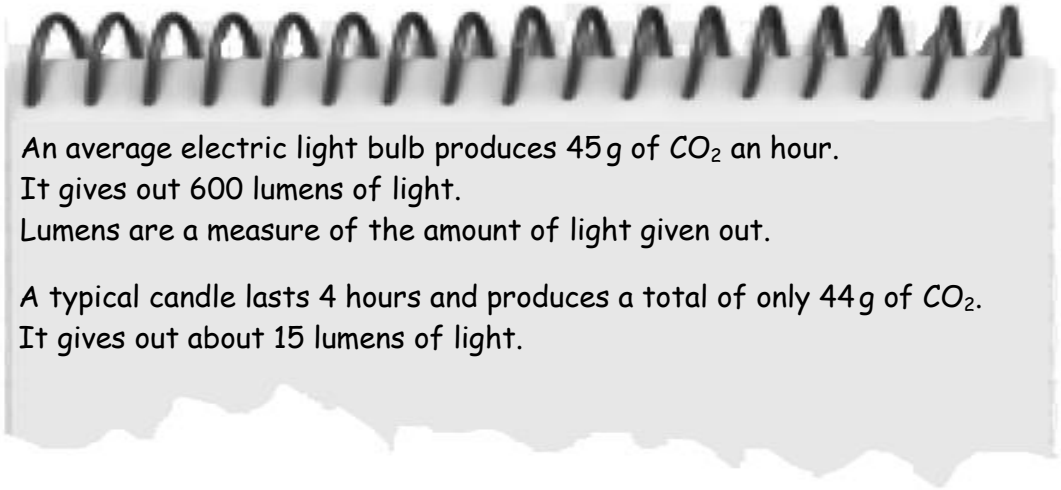


Q3 The original unused candle was 30 cm tall.
How long would it take for one of these unused candles to burn completely?
Explain your answer clearly.

(5 marks)

Examiner use only (Q3)

Amy thinks candles give out less CO_2 than light bulbs.
This would mean that candles are better for the environment.
She does some research.



Q4 Calculate the amount of CO_2 produced by candles giving the same amount of light as an electric light bulb. Is Amy right?

(5 marks) Examiner use only (Q4)

Checking (2 marks) Examiner use only (Checking)

Total marks Examiner use only (Total)

END OF TASK B

TASK C – CHIPS

You will need Task C Resource Document 1.

Jan eats chips from the local fish and chip shop at least twice a week.
His partner Pat thinks this is unhealthy. He finds some information in a book.

Q1 A single portion of chips from their local fish and chip shop weighs about 300 g.

(a) How much saturated fat is there in a single portion?

_____

_____

_____

_____

(2 marks)

(b) Jan says that eating a 300 g portion of chips gives him almost 20% of the daily protein he needs.
Is he correct? Support your answer with working.

_____

_____

_____

_____

_____

_____

(3 marks)

Examiner use only (Q1)

Jan wants to cut down on the amount of saturated fat he eats, but still wants to eat chips.

Pat says that on average:

- oven chips and microwave chips have less saturated fat in them than fish and chip shop chips.

and that

- oven chips have less saturated fat than microwave chips.

They note down the amount of saturated fat in 100 g of some makes of oven chips and microwave chips.
Here are their results.

Oven chips

3.6	0.2	0.7	1.3	3.1	1.7	1.8	0.4

Microwave chips

1.6	0.9	2.8	1.4	0.8	2.1

Q2 Are Pat's statements correct?
Support your decisions with clear working.

(8 marks)

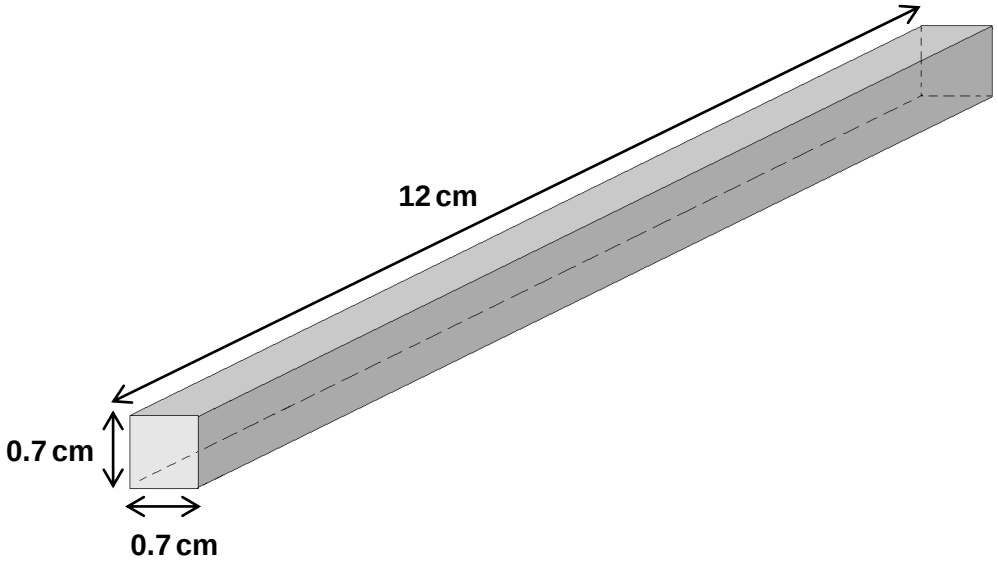
Examiner use only (Q2)

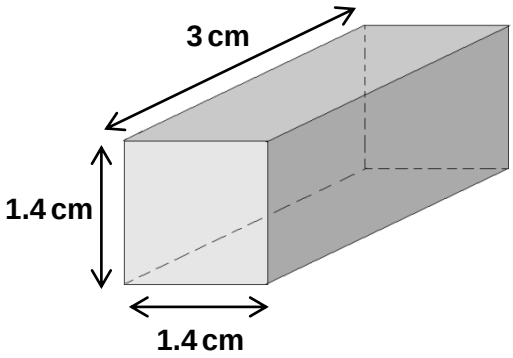
Jan reads this on the *Fish Fryers* website:

Fact
The greater the surface area of a chip the more saturated fat it contains after frying.

When Jan reads this fact he thinks that French fries must have more saturated fat in them than chunky chips.

He assumes that both chip shapes are cuboids.
He sketches the two chip shapes and their dimensions.
Both chips have the same weight and volume.





Q3 Compare the surface area of the two different chip shapes.
Is Jan right that French fries have more saturated fat in them than chunky chips?
Support your answer with some figures.

(5 marks)

Examiner use only (Q3)

Checking (2 marks)

Examiner use only (Checking)

Total marks

Examiner use only (Total)

END OF TASK C