OCR
Oxford Cambridge and RSA

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

LEVEL 2 FUNCTIONAL SKILLS MATHEMATICS   **09866**

TASK AND ANSWER BOOKLET PRACTICE PAPER 4

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		
	/	
	/	
	/	
	/	
	/	**/20**
TASK B		
	/	
	/	
	/	
	/	
	/	**/20**
TASK C		
	/	
	/	
	/	
	/	
	/	**/20**
Total	**/60**	

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

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RESOURCE DOCUMENTS

The Resource Documents on pages 5, 7, 9, 11 and 13 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, 11 and 13 along the perforated strip before removing from the task and answer booklet.

Turn over

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TASK A – BEARS

RESOURCE DOCUMENT 1

These are the UK delivery options that Barney offers his customers:

UK Delivery Table - Summary		
Service	**Postage cost per order**	**Delivery Time**
Standard	Free	Up to 7 working days
Quick	+ £2.95	1-3 working days
Express	+ £5.95	Next working day (for orders placed before 10.00am)
Saturday Express	+ £7.95	Saturday delivery (for orders placed before 10.00am Friday)
A working day is Monday to Friday (excluding weekends and UK bank holidays) No more than 10 bears per order		

Barney can buy boxes at these prices:

Business Boxes

Size	Boxes per pack	Price per pack			
		1 – 4 packs	**5 – 19 packs**	**20 – 39 packs**	**40+ packs**
152 x 152 x 152 mm	80	£22.09	£17.01	£11.71	£9.06
191 x 125 x 125 mm	70	£33.26	£27.94	£22.28	£19.96
203 x 203 x 203 mm	50	£22.20	£17.09	£12.21	£11.32
225 x 155 x 105 mm	50	£15.16	£12.43	£9.85	£6.82
229 x 152 x 152 mm	45	£13.41	£11.26	£9.25	£7.11
254 x 203 x 152 mm	40	£18.75	£14.44	£10.50	£7.50
254 x 203 x 203 mm	40	£19.05	£14.86	£11.05	£10.10
300 x 165 x 58 mm	50	£27.09	£21.94	£16.80	£14.09
305 x 229 x 76 mm	35	£22.64	£18.11	£13.58	£11.32
305 x 229 x 152 mm	40	£16.31	£13.87	£11.23	£8.42
305 x 229 x 229 mm	30	£13.12	£11.41	£9.84	£6.82
381 x 248 x 127 mm	35	£21.73	£16.73	£11.52	£8.69

Turn over

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TASK A – BEARS

Barney can buy plastic postal sacks at these prices:

Width x Length inches	Number in pack	Cost per pack		
		1 or 2 packs	3 or 4 packs	5+ packs
7 x 9	100	£4.35	£3.92	£3.70
7 x 9	1000	£33.75	£30.38	£28.69
9 x 12	100	£5.65	£5.09	£4.80
9 x 12	500	£22.50	£20.25	£19.13
10 x 12	100	£6.35	£5.72	£5.40
10 x 12	500	£25.35	£22.82	£21.55
10 x 14	100	£6.55	£5.90	£5.57
10 x 14	1000	£52.50	£47.25	£44.63
12 x 14	100	£7.85	£7.07	£6.67
12 x 14	1000	£62.50	£56.25	£53.13
13 x 17	100	£8.75	£7.88	£7.44
13 x 17	1000	£69.90	£62.91	£59.42

The title of the table: **Plastic Postal Sacks – save £££££s with our quantity discounts!!!!**

Conversions

1 cm = 0.39 inches
1 inch = 2.54 cm
1 foot = 30.48 cm

Turn over

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TASK B – FLYING BAGS

RESOURCE DOCUMENT 1

Airline hand baggage rules

The following are guidelines.

Airline	Maximum size
Air France	55 x 35 x 25 cm
British Airways	56 x 45 x 25 cm
Easyjet	55 x 40 x 20 cm
Emirates	55 x 38 x 20 cm
Flybe	50 x 35 x 23 cm
Lufthansa	55 x 40 x 20 cm
Monarch	56 x 45 x 25 cm
Ryanair	55 x 40 x 20 cm
United Airlines	56 x 35 x 23 cm
Virgin Atlantic	56 x 36 x 23 cm

	*Linear Length
American Airlines	114 cm
Continental	115 cm
Iberia	115 cm
Qantas	115 cm

*   Linear Length =
Length + Height + Width (L + H + W)
of the case or bag and must
include all side pockets etc.
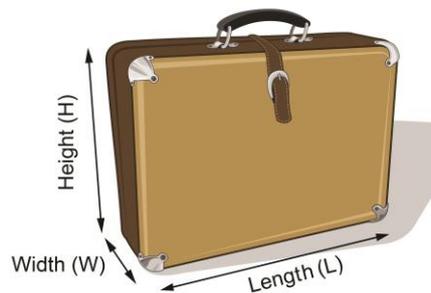
Note: | **1 inch = 2.54 cm**
1 litre = 1000 cm^3

Turn over

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TASK B – FLYING BAGS

Areas and volumes
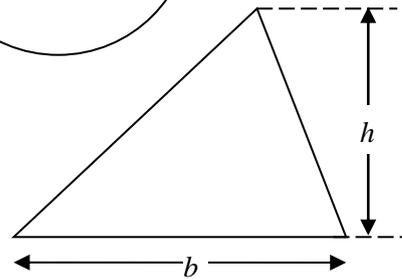
Take π as 3.1 or use the value on your calculator.
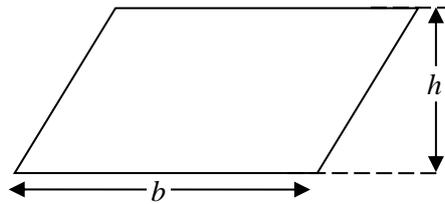
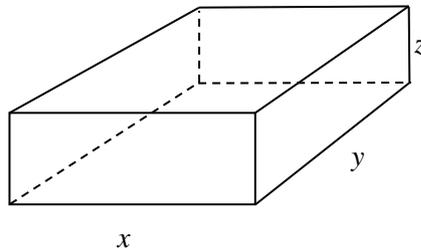Area of a circle $= \pi r^2$
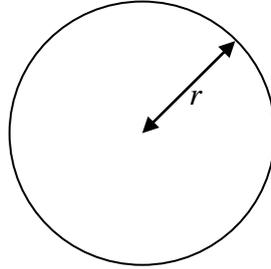
Area of a triangle $= \frac{1}{2}bh$

(*h* is perpendicular height)

Area of a parallelogram $= bh$

Cuboid

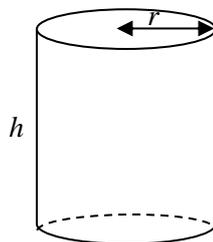Volume $= xyz$

Surface area $= 2xy + 2zy + 2yz$

Cylinder

Volume $= \pi r^2 h$
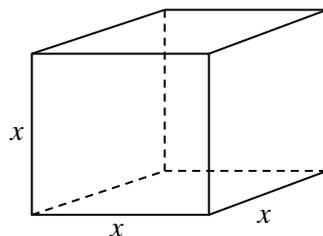
Area of curved surface $= 2\pi rh$

Area of each end $= \pi r^2$

Total surface area $= 2\pi r h + 2\pi r^2$

Cube

Volume $= x^3$

Surface area $= 6x^2$

Turn over

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TASK C – CARS AND CHOICES

RESOURCE DOCUMENT 1

Sally's readings from her milometer.

Date	Reading	Date	Reading
1st Mar 2008	15046	1st Mar 2009	27846
1st Apr 2008	16266	1st Apr 2009	28866
1st May 2008	17220	1st May 2009	29864
1st June 2008	18100	1st June 2009	30764
1st July 2008	19300	1st July 2009	32844
1st Aug 2008	20120	1st Aug 2009	34006
1st Sept 2008	20925	1st Sept 2009	34805
1st Oct 2008	22126	1st Oct 2009	36020
1st Nov 2008	23256	1st Nov 2009	37246
1st Dec 2008	24456	1st Dec 2009	38336
1st Jan 2009	25520	1st Jan 2010	38446
1st Feb 2009	26746	1st Feb 2010	39536

This is the data for two models of car.

	Diesel Car	Hybrid Car
Price	£16,419	£18,950
Engine	1364 cc Diesel	1.8 litre Petrol and 60 kW Electric Motor
Transmission	5 Speed Manual	Electric CVT
0-62 MPH	12 s	11.4 s
Top speed	109 mph	112 mph
Rate of Fuel used: miles per gallon	56.5	74.3
CO₂ emissions	132 g/km	89 g/km
Car tax, per year	£90	£0
Servicing, per year	£190	£210
Tyres, per year	£110	£110

f is the number of litres of fuel used
d is the number of miles driven in a year
r is miles per gallon

$$f = \frac{d \times 4 \cdot 5}{r}$$

Turn over

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TASK AND ANSWER PAGES

Do not turn over this page until you are told to do so by your supervisor.

Turn over

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TASK A – BEARS

You will need Task A Resource Document 1

Barney runs an internet business selling teddy bears.
He sells two sizes of bear.

Medium bear

25.1 x 15 x 12.4 cm *

£14.99

Large bear

40.9 x 26.7 x 17.8 cm *

£23.99

* Length x width x depth

Q1 **(a)** Ellen decides to order two bears, one of each size. She needs them to be delivered within three working days. She uses the delivery table in the Resource Booklet to find out the postage cost.

What is the least that Ellen will have to pay in total?

_____

_____

_____

_____
(2 marks)

(b) On Friday 23 July at 9.30 am, Annie places an order for one large bear. She wants the bear delivered as soon as possible.

(i) What is the earliest date on which the bear could be delivered?

_____

_____
(1 mark)

(ii) What will be the total Annie has to pay to get the bear delivered by Monday 26 July?

_____

_____

_____

_____

(2 marks)

(c) Barney packs the bears into cardboard boxes.

(i) What size box would Barney need to buy for a medium bear?

_____

_____

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(2 marks)

(ii) Barney wants to buy 1000 boxes for medium bears.

How much will it cost per box?

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(3 marks)

(d) Barney thinks it will be cheaper to pack the medium bears into plastic postal sacks.

To be sure that a bear will fit into the sack, Barney estimates that the sack needs to be twice the width of the bear and 25% longer than the bear.

Is Barney right in thinking that plastic sacks are cheaper?

Explain all your working.

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(8 marks)

Checking (2 marks)

Total marks

Examiner use only (Q1)

Examiner use only (Checking)

Examiner use only (Total)

END OF TASK A

Turn over

TASK B – FLYING BAGS

You will need Task B Resource Document 1

Anita plans a holiday.
She will fly to her destination.

Q1 **(a)** Last year she had too much luggage and had to pay extra.
According to the airline's rules:

> ***When baggage allowance is exceeded an excess baggage charge must be paid.***
> The excess baggage charge is 1% of the highest published one-way Adult Economy
> Fare for the journey per kilogram of excess weight.

The baggage allowance was 20 kg. Anita's bags weighed 30 kg.
The highest published one-way Adult Economy Fare for her journey was £500.

(i) How much was Anita's excess baggage charge?

_____

_____

_____

_____

(2 marks)

(ii) Anita flew with a budget airline. Her ticket cost a twentieth of the highest
published one-way Adult Economy Fare!

How much was Anita's ticket?

_____

_____

(1 mark)

(b) Many budget airlines allow free hand baggage.
It must be light enough for a person to put into an overhead locker.

(i) What do you think is the heaviest weight an average person could easily lift into an overhead locker?

_____

_____

(1 mark)

(ii) Anita measures her favourite bag.
It is 22 inches by 15 inches by 9 inches.

Which airlines on the list in the Resource Booklet would allow her to take this as hand luggage?

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(4 marks)

Turn over

Anita decides to buy a new bag, but does not want one which is too big.
She sees this one online.

- **Type:** FLIGHT BAG
- **Handles:** Integrated adjustable shoulder strap with pad
- **Internal Features:** Interior zip pocket
- **External Features:** Front zip pocket & smart sleeve
- **Capacity:** 15 litres
- **Dimensions:** Height: 26 cm, Width: 38 cm, Depth: 15 cm

(c) Anita does a calculation and finds that her value for the volume of the bag **does not** match the capacity quoted.

Do you agree with Anita?
Show all your calculations clearly, and explain any difference.

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(4 marks)

(d) Anita has to choose between American Airlines and Flybe to get to her holiday destination.

Which airline allows the larger volume hand baggage?
Make all your assumptions and working out clear.

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(6 marks)

Checking (2 marks)

Q3 (plus checking) marks

END OF TASK B

TASK C – CARS AND CHOICES

You will need Task C Resource Document(s)

Sally drives a car with a diesel engine.
This sign shows the price of fuel in pence.

Unleaded Litre	110.9
Diesel Litre	120.9

Q3 **(a)** How much does Sally pay for 20 litres of diesel?

_____

_____

_____

_____
(2 marks)

(b) Sally records the reading on her car's milometer on the 1st of every month. This data is shown in the Resource Booklet.

How many miles in total did Sally drive in 2009?

_____

_____

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_____
(2 marks)

(c) Sally wants to know how much it cost her to drive her diesel car in 2009.
First she estimates the amount of fuel used.
She uses this formula.

$$f = \frac{d \times 4 \cdot 5}{r}$$

f is the number of litres of fuel used
d is the number of miles driven in a year
r is miles per gallon

(i) How much fuel did Sally's car use?

_____

_____

_____

_____
(2 marks)

(ii) How much did this fuel cost?

_____

_____
(1 mark)

Sally adds on the cost of servicing, tyres and car tax.

(iii) What is the total cost?

_____

_____

_____

_____
(2 marks)

Turn over

Sally wants to buy a new car.
She has seen a Hybrid car which uses both a petrol engine and an electric motor.

(d) How much would it have cost Sally to run the Hybrid car in 2009?

_____

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(5 marks)

Sally will buy either the Hybrid car or a new diesel car. Sally plans to keep her new car for 4 years.

(e) Which car would you recommend? Give your reasons.

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(4 marks)

Checking (2 marks)

Total marks

END OF TASK C

Task 1, page 17 Gund Teddy Bears, www.bears4u.co.uk
Task 2, page 22 Flight Bag © Eagle Creek www.zappos.com

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