OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

FUNCTIONAL SKILLS ASSESSMENT PILOT

LEVEL 2 FUNCTIONAL SKILLS MATHEMATICS
SAMPLE ASSESSMENT MATERIALS

TASK BOOKLET

SEPTEMBER 2007

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

Centre name	
Centre number	
Your OCR candidate number	
Your surname or family name	
Your first forename (if any)	
Your second forename (if any)	
Date of birth	

YOU NEED
- This task booklet
- A pen with black or blue ink

You may use a calculator.

INSTRUCTIONS

YOU HAVE 1 HOUR AND 15 MINUTES TO COMPLETE THE 3 TASKS. YOU ARE ADVISED TO SPEND 5 MINUTES PLANNING AND 20 MINUTES WORKING ON EACH TASK
- Read the tasks inside this booklet carefully before starting the tasks
- Write your answers in this booklet
- When you have finished, hand this booklet to the supervisor

FOR EXAMINERS' USE ONLY	
Task No.	**Mark**
1	/18
2	/18
3	/18
Total	/54

This document consists of 13 printed pages and 0 blank pages

© OCR 2007 Registered Company Number: 3484466 **[Turn over**

Task 1

Blackpool Tower

Planning sheet
Any work on this sheet will not be directly marked, but may be used to contribute to the examiner's understanding of your answer.

Task 1

Blackpool Tower

Amy lives on the coast in Meols. Meols is south of Blackpool and just west of Liverpool.

She says she can just see Blackpool Tower from the beach.

Blackpool Tower

It was originally called the “Blackpool Eiffel Tower”.

The Tower cost £42 000 to build and was opened on 14th May 1894.

It is about 519 feet tall.

SOME HANDY CONVERSIONS

A kilogram is a bit more than 2 pounds

A pound is approximately 450 grams

A metre is a bit more than a yard (which is 3 foot).

An inch is about 2.5 cm

A foot is about 30 cm

5 miles is about 8 km

A litre is less than 2 pints.

A gallon is 8 pints.

A gallon is about 4.5 litres.

HOW TALL, HOW FAR AWAY?

This tells you how far away a tall building can be seen.

(1) First find the square root of the building's height in metres.

(2) Multiply this answer by 3.5

(3) Now add 5.

The final answer is how far away the building can be seen in kilometres.

For example, a 36 m tall building can be seen from a distance of

$$(6 \times 3.5) + 5 = 26 \text{ km}$$

(note: the square root of 36 is 6)

Use the map and the other information to investigate Amy's claim that she can see Blackpool Tower from the beach at Meols.

[18]

Credit will be given for well organised work, where you make clear the method and calculations you have used in your answers.

Task 2

Solar Panels

Planning sheet
Any work on this sheet will not be directly marked, but may be used to contribute to the examiner's understanding of your answer.

Task 2

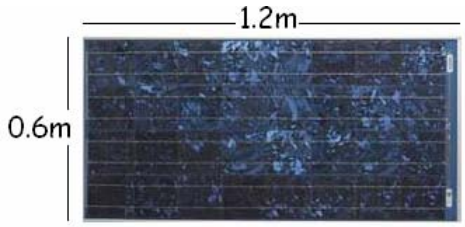
Solar Panels

Amber lives near Oxford.

She wants to save money and help the environment by buying a solar panel and battery to get “free” electricity from sunshine.

Amber wants to work out how much money she might save on her electricity bill by buying a solar panel and the other electrical equipment needed.

First she looks on the internet to gather the information she needs.



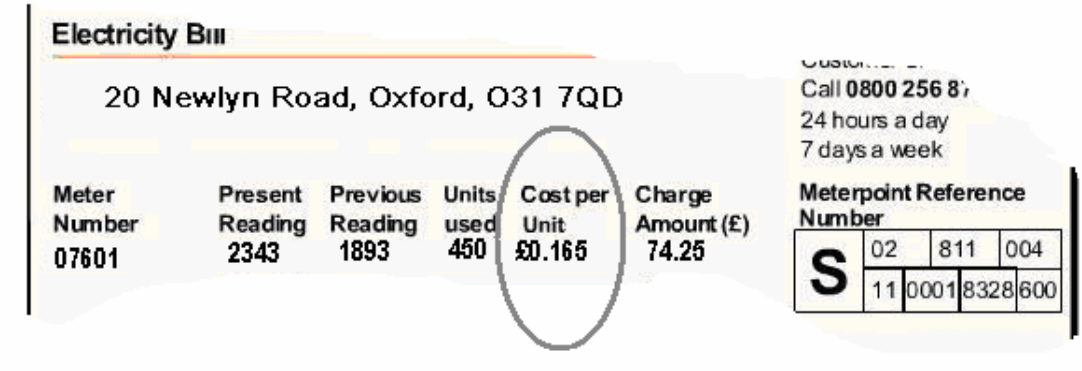
The Sol King (£355 per panel)
(each rectangular panel measures 0.6 m by 1.2 m)

The total extra cost for installation of all the solar panels and connection to the house’s electrical supply is £450.

Electricity is “sold” in units – a unit is 1 kWh (one kilowatt hour)

The best buy is the Sol King, each panel costs £355. Each square metre of panel will generate 0.11 units of electricity for every hour of sunshine.

Amber pays her electrical supply company £0.165 per unit.
The company will buy back any spare electricity at the same price!



Electricity Bill

20 Newlyn Road, Oxford, O31 7QD

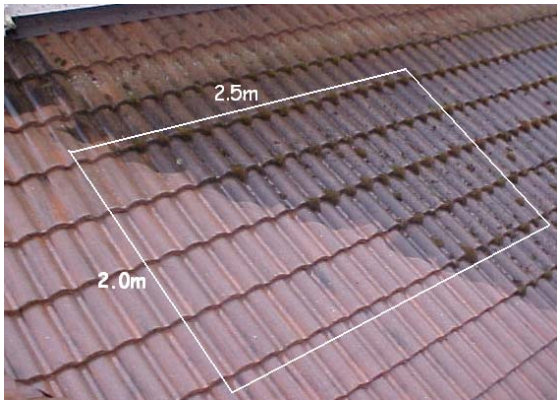
Call 0800 256 8
24 hours a day
7 days a week

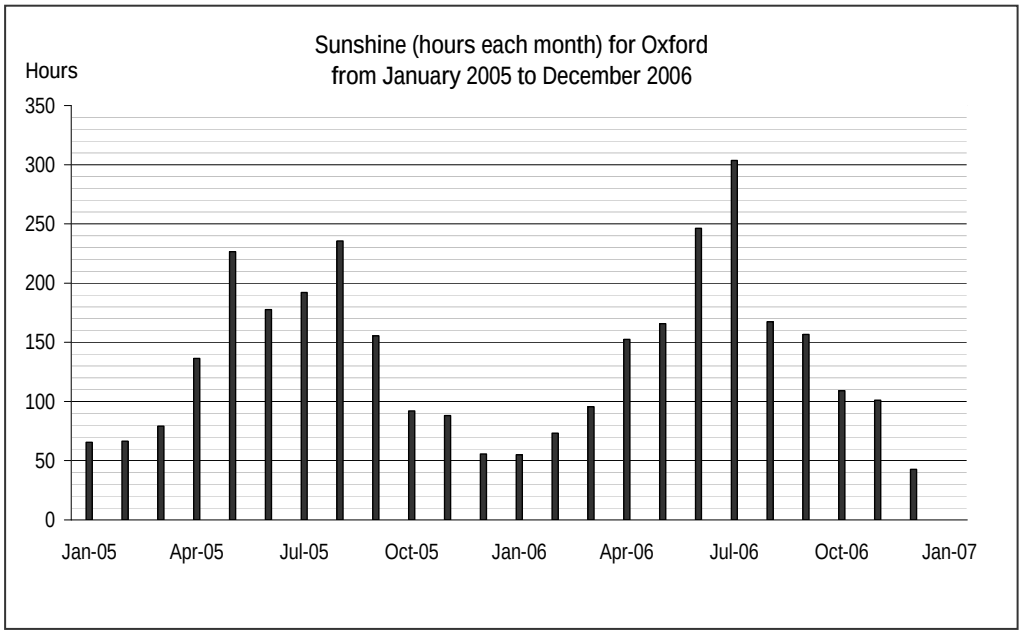
Meter Number	Present Reading	Previous Reading	Units used	Cost per Unit	Charge Amount (£)
07601	2343	1893	450	£0.165	74.25

Meterpoint Reference Number

S	02	811	004
	11	0001	8328	600

Amber has a rectangular area of roof measuring 2m by 2.5 m
in which to fit all the solar panels.





There is a Local Authority grant of 30% towards the total cost of any house fitting solar panels.

Would Amber save any money on the costs of buying and fitting the solar over a year from the "free" electricity?
Write a report, supported by calculations to help her decide.
Don't forget to mention all the assumptions you might make.

[18]

Credit will be given for well organised work, where you make clear the method and calculations you have used in your answers.

Task 3

Carrying Cans

Planning sheet
Any work on this sheet will not be directly marked, but may be used to contribute to the examiner's understanding of your answer.

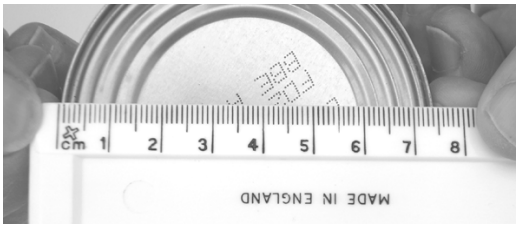
Task 3

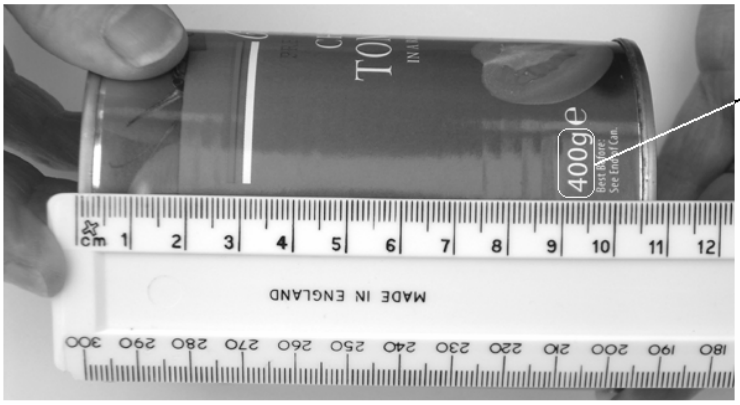
Carrying Cans

Choy's parents run a small supermarket.
She works there part-time.

Deliveries are made to a store room at the back of the shop.
One of her jobs is to carry food cans from there to the shop shelves.

Choy measures a typical can.





Use this weight.

Design a cardboard box which will securely hold the cans in it.
It cannot hold too many cans for Choy to carry easily,
but she doesn't want to make too many trips!

The cardboard box will be cut from a single sheet of cardboard.
This cut-out will then be stapled, folded or glued together to make the box.

Make a scale drawing of the cut-out on **2 mm graph paper**
and a 3-D sketch showing the dimensions of the finished box.

SHOW ALL YOUR WORKING CLEARLY, SO THAT SOMEONE ELSE CAN FOLLOW WHAT YOU DID.
EXPLAIN CLEARLY ANY REASONS FOR YOUR PARTICULAR DESIGN.

[18]

Credit will be given for well organised work, where you make clear the method and calculations you have used in your answers.