

EDI AWARD IN FUNCTIONAL SKILLS

MATHEMATICS

LEVEL 2

YOU NEED:

- This paper
- An answer book

You may use a calculator

Do **NOT** open this paper until you are told to do so by the supervisor

TOTAL AVAILABLE MARKS: 60

YOU HAVE 90 MINUTES TO FINISH THE PAPER

YOU SHOULD ANSWER NOT MORE THAN **THREE** TASKS.

Should you answer more than three tasks, only the first three tasks will be marked and will be taken into account in your overall mark.

Unless you indicate otherwise, any work crossed out will be ignored by the markers.

You are advised not to cross out any work unless you are sure you want it to be ignored.

Show all your working out.

Candidates have an additional 15 minutes reading time at the beginning of the test.

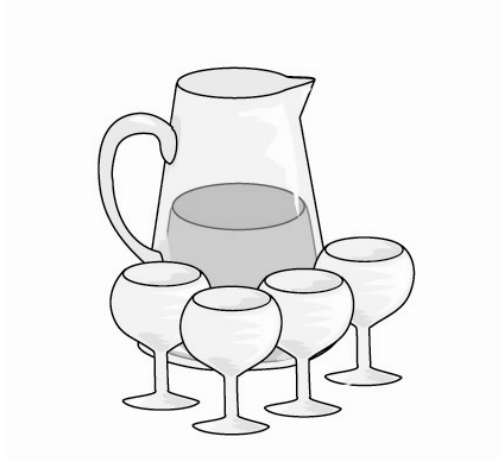
INSTRUCTIONS

- Make sure your personal details are entered correctly on the answer book.
 - At the end of the tasks, hand the paper, your answer book and all notes to the supervisor.
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INSTRUCTIONS TO CENTRES

- This paper must not be photocopied.

Task 1



You are helping to prepare a family dinner. Curry is the main dish and you want to make two jugs of mango lassi.

This is an Indian drink like a mango milkshake. You have found an old recipe which lists the ingredients as:

9 fluid ounces plain yoghurt

4½ fluid ounces milk

4½ fluid ounces canned mango pulp

4 teaspoons of sugar

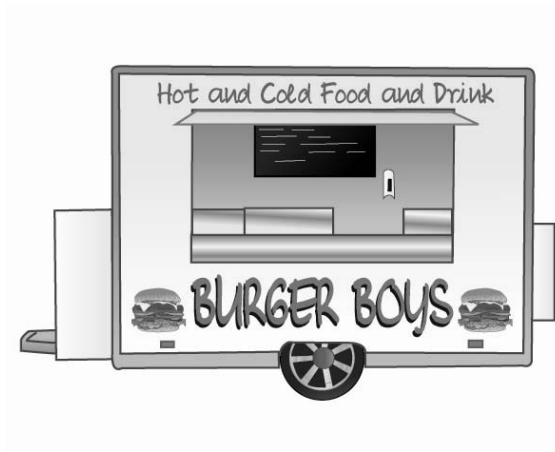
You find 2 jugs, each of which holds 2 litres. You want to fill them both with mango lassi. The only ingredient you do not need to buy is sugar.

What quantity of each ingredient will you need to buy?

Take 1 litre to be the equivalent of 35 fl oz.

(Total 20 marks)

Task 2



You achieved a food hygiene certificate from college and have bought a burger van. There will be a rock festival next month to raise funds for the centre.

The organisers will allow three burger van pitches. Pitches will be granted to those putting in the most competitive bids.

The organisers tell you that 10,000 people will be attending. You doubt this as it has rained a lot this summer, so you halve the number given.

You do some research and estimate that three quarters of those attending will spend about £2.50 each.

You want to bid a fifth of your estimated takings for a pitch. This will give a good profit.

You also calculate that your profit margin should be 30% of your estimated takings.

How much should you bid for a pitch?

How much profit should you make if your estimated takings are correct?

Please show all of your working.

(Total 20 marks)

Task 3



Plans are well under way for a new children's play area at South Birmingham Community and Leisure Centre. However, the land includes a very old oak tree.

The Council has ordered that:

- a) the tree must remain in place
- b) the footpaths and play equipment should not enter the area under the branches of the tree, as it currently stands.

The tree is more than 300 years old. It is 21 metres tall and the branches spread over a circular area of about 32 square metres.

What is the length of the fencing needed to keep the area under the tree free from any disturbance?

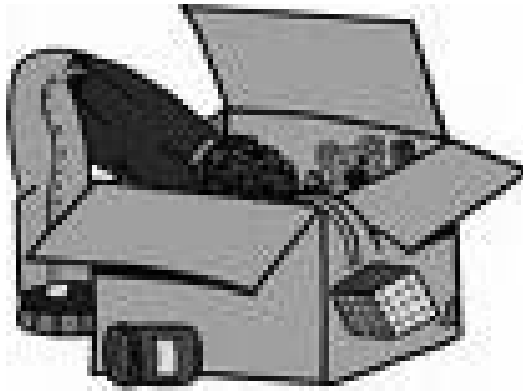
Please show all of your working.

Circumference of a circle = $2\pi r$

Area of a circle = πr^2

(Total 20 marks)

Task 4



To raise the extra funds it needs, South Birmingham Community and Leisure Centre intends to hold sales of unwanted gifts, clothes, shoes, bags, books etc.

As small items donated to the Community Centre are collected, they are to be stored in a cupboard until needed.

To keep the different items separate, and to make handling easier, they intend to buy boxes in which items can be stored.

The cupboard will be fitted with shelving on two long walls and one short wall.

The cupboard is 96 inches long by 66 inches wide.

The boxes are 43cm long x 35cm wide x 24cm deep/high.

There will be 3 shelves on each wall and they will be 18 inches wide and 12 inches apart. The first shelf will be 36 inches from the floor.

No boxes can be stored on the floor.

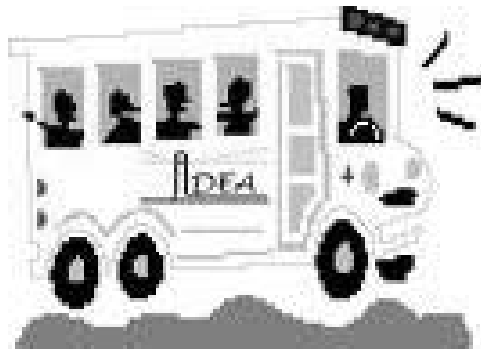
The staff need the following information:

- a) How many boxes will be needed to fill all the shelves.
- b) A scale plan of the cupboard showing one level of the shelves with the boxes in place.

12 inches = 30 cm

(Total 20 marks)

Task 5



A service offered by The South Birmingham Community and Leisure Centre is that which helps with transport for a number of groups of people.

The centre uses volunteer drivers who are paid at a rate per mile, however the increases in the cost of fuel means that the rate needs to change.

At the start of the year, the drivers are paid at a rate of:

- 33p per mile for the first 18000 miles they drive in a year, and then at
- 25p per mile for any more miles in that year.

After three months of this new rate, on April 1st the centre increased the rate to 40p per mile but reduced the mileage at this rate to 10,000 miles. The rate then went back to the 25p mile for the rest of the year.

So that they do not lose the drivers, the centre agrees to back date the scheme to the start of the year. In this way, the drivers can claim an extra 7p per mile for the first three months' miles that they have already covered and these will then count towards the 10,000 miles.

The drivers are worried that they will lose money under this scheme. They need to check, using the mileage they have already been paid for, to see if this is a good scheme.

They need to know:

- a) The average monthly mileage over a year.
- b) The month in which the 10000 mile mark should be reached.
- c) Is this is a good scheme and will they be better off.

The Mileage they have to work on is:

Actual mileage for 2009		
Jan	Feb	Mar
2204	1526	2117

Previous mileage for 2008								
Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2035	1743	2818	1882	3082	1162	2578	2107	1986

(Total 20 marks)