Level 2 Certificate in Essential Skills
Application of Number

Sample 5

Length of assessment
1 hour 30 minutes

Candidate name (first, last)

First

Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Gender (M/F)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

- If additional answer sheets are used, enter the additional number of pages in this box. 0 0

- Please ensure that you staple additional answer sheets to the **back** of this answer booklet, clearly labelling these with your full name, enrolment number, centre number and qualification number in BLOCK CAPITALS.
- All candidates need to use a **black/blue** pen. **Do not** use a pencil or gel pen, unless otherwise instructed.
- If provided with source documents, these documents **will not** be returned to City & Guilds, and will be shredded. Do not write on the source documents.

***I declare that I had no prior knowledge of the questions in this examination and that I will not divulge to any person any information about the questions.**

You should have the following for this assessment

- a pen with black or blue ink
- a pencil and eraser for graph/diagram work
- a 30 cm ruler.
- You may use a calculator.
- You may use a protractor.
- You may use a dictionary.

General instructions

- There are **2** tasks to complete.
- Each task is worth 25 marks.
- You should spend an equal amount of time on each task.
- Read through each task carefully.
- The maximum marks available are shown for each question.
- Show your working out, you may get marks for it.
- Check your calculations.
- Write all working out and answers in this booklet.

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Task 1 Long jump

There are **25** marks available for this task.
You should check all your work as you go along.

Introduction
This task is about ordering materials to complete a long jump track.

1A
This is a scale diagram of the long jump track.

Work out the length of the **runway**.

Show your working

Length of runway _____**m**

(2 marks)

1B
The long jump runway needs a special surface.
You need to know how many bags of special material to order for it.

The width of the runway is 1.2m
Each bag of special material covers $2.5m^2$

Work out the
- area of the runway
- number of bags of special material to order.

Show your working

Area of runway _____ m^2

Number of bags to order _____

(3 marks)

1C
Look at your answer in **1B**, explain why you decided to order that number of bags.

Explanation

(1 mark)

1D
The walk out zone measures 4 metres x 2 metres.

You need to order turf for it.

Turf comes in strips of 50cm x 200cm

Draw a rough sketch diagram (not to scale) to show how the strips of turf will fit on the walk out zone.

Label the dimensions on your sketch.

Use your sketch to work out how many strips of turf you need.

Space for working

Draw your sketch here

Number of turf strips _____

(4 marks)

1E

Each turf strip costs £1.89
Work out the total cost for the number of strips you will need to buy.

Show your working

Cost for number of turf strips £ _____

(1 mark)

1F

You need to order sand to fill the landing pit.
It measures 8 metres x 4 metres.
The depth of the sand will be 50cm

A tonne of sand will fill approximately $2m^2$ at 400mm depth.

Work out how many tonnes of sand you need for the landing pit.

Show your working

Sand _____ tonnes

(3 marks)

1G
A tonne of sand costs £194.00 + VAT.
VAT is 20%.

Work out the total cost for the sand you need.

Show your working

Total cost for sand £ _____

(3 marks)

1H
The landing pit measures 8 metres x 4 metres.
It will have a rubber safety strip all around the edge.
A rubber safety strip costs £5.25 per foot and is sold in whole feet.

1 foot = 0.3048m

Work out the
- perimeter of the landing pit in feet to the nearest foot
- cost for the rubber safety strip.

Show your working

Perimeter of landing pit _____ feet

Cost of rubber safety strip £_____

(4 marks)

1 l
Seven athletics clubs will use the long jump pit.

They agree to pay $\frac{1}{7}$ of the total cost each.

Complete the following table to show the total costs of materials and what each club must pay.

Show your working

Item	**Price (£)**
Material for runway	2045.80
Turf	
Sand	
Rubber safety strip	
Total cost	
Cost per club	

(4 marks)

Task 2 Shampoo

There are **25** marks available for this task.
You should check all your work as you go along.

Introduction

This task is about checking a claim made in an advert.

2A

The advert for a new shampoo makes the following claim

Rapid Growth shampoo increases hair growth by an average of 25% in one month!

A health magazine tests the new Rapid Growth shampoo.

20 volunteers used their normal shampoo for one month and then tried Rapid Growth shampoo for the next month.

At the end of each month the volunteers measured their hair.

This table shows the amount the volunteers' hair grew.

Hair growth in July using normal shampoo (mm)	Hair growth in August using Rapid Growth shampoo (mm)
16	19
11	12
14	16
16	18
9	12
12	12
12	17
14	17
8	9
14	16
15	11
19	21
13	13
13	17
11	16
15	14
7	14
8	10
9	10
14	16

Work out the range for the volunteers' hair growth using

- their normal shampoo in July and
- the Rapid Growth shampoo in August.

Show your working

Range for hair growth in July _____ **mm**

Range for hair growth in August _____ **mm**

(3 marks)

2B

Explain what these ranges tell you about the hair growth.

Explanation

(1 mark)

2C

Check one of your calculations in **2A**

Use a different method to the one you used originally.

Write your check here.

(1 mark)

2D

Choose a suitable average to work out the amount the volunteers' hair grew using

- their normal shampoo in July and
- the Rapid Growth shampoo in August.

Tick the average you will use (Tick one box)

Mean	☐	**Median**	☐

Show your working

Average hair growth in July _____ **mm**

Average hair growth in August _____ **mm**

(4 marks)

2E

Explain why the average you used in **2D** is the most suitable.

(1 mark)

2F

Compare your results in **2D** for July and August.

Make **one** comment.

(1 mark)

2G

Use your results in **2D** and the formula below to work out the increase in the volunteers' hair growth as a percentage.

$$P = \frac{100(R - N)}{N}$$

where P = increase in hair growth (%)

R = average growth in mm using the Rapid Growth shampoo

N = average growth in mm using normal shampoo

Show your working

Increase in hair growth _____ %

(3 marks)

2H

Two other magazines carry out similar tests. This table shows the results.

Magazine	Increase in hair growth (%)
Great Hair Magazine	17.5
Style Me Magazine	27.5

Draw a suitable chart to compare these results with the health magazine result in **2G** and **the advert's claim**.

Use the graph paper below.

(4 marks)

2I
Do you think the claim in the advert is true?

Explain your decision.

Tick your decision (Tick one box)	**Yes** ☐	**No** ☐	**Not sure** ☐

Explanation

(2 marks)

2J
The health magazine wants to carry out another test.

For the first test they invited 80 people to take part.
40 agreed to take part and started the test, but only 20 people completed the test.

Use this information to work out the probability that someone who is invited to join a test will agree **and** complete the test.

Draw a diagram (tree diagram or probability scale) to show your answer.

Show your working

Probability _____

Draw your diagram here

(4 marks)

2K
The health magazine wants to carry out the new test with more people. This time they want 100 volunteers to **complete** the test.

Use your probability in **2J** to work out how many people they need to invite to take part in the new test?

Show your working

Number of people _____

(1 mark)

Spare graph paper for 2H only

Extra space for working out and answers

End of examination