

## **GENERAL EDUCATION AND TRAINING CERTIFICATE**

## **NQF LEVEL 1**

## **AET LEVEL 4 SITE-BASED ASSESSMENT**

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| **LEARNING AREA** | **:** | **MATHEMATICS AND MATHEMATICAL SCIENCES** |
| **CODE** | **:** | **MMSC4** |
| **TASK** | **:** | **INVESTIGATION** |
| **TIME** | **:** | **3 HOURS** |
| **MARKS** | **:** | **50** |

**This assessment task consists of 4 pages.**

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| **INSTRUCTIONS AND INFORMATION** |  |  |

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| 1. | This investigation should be done in pairs. Each member should however write his/her own work and submit. |  |  |

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| 2. | ACTIVITY 1 and 2will be marked using a memorandum. |  |  |

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| 3. | For preparation, you need to have the following: a ruler, pencil and a calculator. |  |  |

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| **ACTIVITY 1** |  |  |

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| At Ayanda's hair salon 30 mℓ of shampoo is used for each customer. One bottle contains 750 mℓ of shampoo. |  |  |

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| Study GRAPHS A and B below. |  |  |

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| **GRAPH B**  **GRAPH A**  graph2  graph  **Use of a 750 ml of shampoo**  **Volume of Shampoo used**  **Number of Days per 750 ml shampoo**  **Shampoo used in ml**  **Number of customers per day**  **Number of Customers** |  |  |

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| 1.1 | Use GRAPH A to answer the following questions: |  |  |

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|  | 1.1.1 | Explain In your own words what information is communicated in GRAPH A. |  | (2) |

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|  | 1.1.2 | Write down a rule that you will use to determine the relationship between the shampoo used and the number of customers. |  | (2) |

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|  | 1.1.3 | State which ONE of the two variables is dependent. Why do you say so? |  | (2) |

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|  | 1.1.4 | Calculate the values on the vertical axis for any three values on the horizontal axis. Show ALL calculations. |  | (6) |

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|  | 1.1.5 | Fill in the missing words:  The more the number of customers the ... the amount of shampoo used. |  | (1) |

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|  | 1.1.6 | What type of proportion is described in QUESTION 1.1.5? |  | (1) |

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| 1.2 | Use GRAPH B to answer the following questions: |  |  |

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|  | 1.2.1 | Write a formula to determine the relationship between the number of days and the number of customers per day. |  | (2) |

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|  | 1.2.2 | After how many days will a 750 mℓ shampoo bottle be finished when 10 customers have been serviced? |  | (1) |

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|  | 1.2.3 | How many customers in a day will be serviced by two 750 mℓ shampoo bottles? Show ALL the calculations. |  | (2) |

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|  | 1.2.4 | What type of proportion is represented in GRAPH B? Motivate your answer by describing the proportion. |  | (2) |

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|  | 1.2.5 | Use THREE values in the graph and do the calculations to justify the answer in QUESTION 1.2.4 |  | (6) |

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| 1.3 | Compare the two graphs. What is the implication when more customers visit the salon? |  | (3)  **[30]** |

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| **ACTIVITY 2** |  |  |

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| The municipality in your area wants you to design a community vegetable garden for the youth in the community. There is 150 m of fence available to enclose the rectangular ground. The wall will be one side of the garden; so only three sides of the rectangular garden will be fenced off. It is your task to design the largest rectangular garden area that can be enclosed with 150 m of fence. |  |  |

140 m

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| 5 m  5 m  Example:  Wall |  |  |

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| 2.1 | Copy and complete the table below with possible combinations of widths and lengths for the vegetable garden.   |  |  |  |  | | --- | --- | --- | --- | | **Perimeter (m)** | **Width (m)** | **Length (m)** | **Area (** | | 150 | 0 | 150 | 0 | | 150 | 5 | 140 | 700 | | 150 | 10 | 130 | 1300 | | 150 | (c) | (d) | (e) | | 150 | (e) | (f) | (f) | |  | (8) |

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| 2.2 | Use trial and improvement to determine the maximum area of the garden. |  | (4) |

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| 2.3 | What is your observation regarding the sizes of the length and width of the garden for it to give maximum area? |  | (2) |

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| 2.4 | Determine the area of the garden if the width of 10 m is doubled and the length of 130 m remains the same. |  | (2) |

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| 2.5 | Give FOUR reasons why community gardens are important. |  | (4)  **[20]** |

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| **TOTAL:** |  | **50** |