

## **GENERAL EDUCATION AND TRAINING CERTIFICATE**

## **NQF LEVEL 1**

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

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

**This assessment task consists of 5 pages and 1 addendum.**

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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 will be marked using a MEMORANDUM and ACTIVITY 2 will be marked using a rubric. |  |  |

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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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| 1.1 | Mr Rooyen wants to repaint the interior of his house. He got two quotes from different painters. All the quotes in Rands, are related to the area that needed to be painted. Painter A's quote is a standard fixed charge of, and then charges for every that must be painted. The graph below shows how to calculate quote when the area to be painted is known: |  |  |

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|  | Painters A's quotation |  |  |

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|  | 1.1.1 | Use the graph above to complete the table below. |  |  |

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|  |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **AREA** in | 0 | 20 | 40 | 60 | 80 | 100 | | **COST** in R |  |  |  |  |  |  | |  | (3) |

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|  | 1.1.2 | Write the formula using a graph or table that Painter A uses to calculate the quotes for painting. |  | (2) |

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|  | 1.1.3 | Determine how much they will pay when Painter quote for an area of. |  | (1) |

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|  | 1.1.4 | Use the formula to calculate the area if Painter A quote is R950. |  | (2) |

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| 1.2 | Painter B's quote charges a fixed charge of and then charges R200 for every. |  |  |

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|  | 1.2.1 | How much will the second quote charge be for an area of? |  | (2) |

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|  | 1.2.2 | Use ADDENDUM (attached) and plot the second quote on the same graph as for Painter A. |  | (3) |

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|  | 1.2.3 | Determine the formula for calculating the second quote. |  | (2) |

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|  | 1.2.4 | Use the formula to calculate the cost when the area is |  | (2) |

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|  | 1.2.5 | Reading from the graph write the co-ordinates of the point of intersection of the two graphs. |  | (2) |

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|  | 1.2.6 | Explain in your own words what is happening at the point in QUESTION 1.2.5. |  | (3) |

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|  | 1.2.7 | When will it be better to use painter A?  Motivate your answer reading from the graph. |  | (3) |

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|  | 1.2.8 | Mr Rooyen's sister wants to use the same quotations given to her brother to paint her wall. Which painter could you recommend?  Motivate your answer. |  | (2) | |
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| **ACTIVITY 2** |

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| 2.1 | Complete the following tables in Activity 2.1.1 and 2.1.2 using the equation given on the first column |  |  |

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|  | 2.1.1 | **TABLE 1**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | Equations |  |  |  | 0 |  |  |  | | (i) |  |  |  |  |  |  |  |  | | (ii) |  |  |  |  |  |  |  |  | | (iii) |  |  |  |  |  |  |  |  | | (iv) |  |  |  |  |  |  |  |  | |  |  |

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|  | 2.1.2 | **TABLE 2**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | Equations |  |  |  | 0 |  |  |  | | (i) |  |  |  |  |  |  |  |  | | (ii) |  |  |  |  |  |  |  |  | | (iii) |  |  |  |  |  |  |  |  | | (iv) |  |  |  |  |  |  |  |  | |  |  |

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|  | 2.1.3 | Draw the graphs using co-ordinates found in ACTIVITY 2.1.1 on the same set of axes. |  |  |

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|  | 2.1.4 | Draw the graphs using co-ordinates found in ACTIVITY 2.1.2 on the same set of axes. |  |  |

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|  | 2.1.5 | By comparing graphs in ACTIVITY 2.1.3 and 2.1.4 what do you notice about the effect of gradient on the slope of the graph? |  | **[23]** |

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

**ACTIVITY 2**

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|  | **This is the rubric for marking Activity 2** | | | | | | | | | |
| **Criteria** | | **Descriptor** | | | | | | | | **Mark** |
| **Correctness of table completion** | | **Correct completion of table** | | | | | | | |  |
|  | **1** | | **2** | | **3** | | **4** |
| **Table1** | 0–7 values have been filled in the table | | 8–20 values have been filled in the table | | 20–27 values have been filled in the table | | All the 28 values have been filled in the table |
| **Table 2** |
| **Correctness of plotting of points on the grid.** | | **Plotting points on the axis** | | | | | | | |  |
|  | **1** | | **2** | | **3** | | **4** |
| **Graph 1** | 0–2 the points on the table have been plotted correctly | | 3–4 the points on the table have been plotted correctly | | 5–6 the points on the table have been plotted correctly | | All the points on the table have been plotted correctly |
| **Graph 2** |
| **Correctness of the graph drawn.** | | **Drawing of graph** | | | | | | | |  |
| **1** | | | | **2** | | | |
| The graph drawn is not a perfect and a straight line | | | | All 4 graphs perfect straight lines are drawn. | | | |
| **Explanation of the graph about the gradient/slope the graphs.** | | **Gradient/ Slope of the graph** | | | | | | | |  |
| **1** | | **2** | | | | **3** | |
| No explanation of all the aspects of the gradient of the graph | | Some aspects of the gradient are explained | | | | All aspects of the gradient are explained e.g. shape, direction of the line, increasing/decreasing of the graphs. | |
|  | |  | |  | | | | **TOTAL** | |  |

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

**ADDENDUM**

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| **NAME:** |  |  |  |
| **NAME OF CLC:** |  |  |  |

