



# higher education & training

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

## **GENERAL EDUCATION AND TRAINING CERTIFICATE**

### **NQF LEVEL 1**

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

**LEARNING AREA : MATHEMATICS AND  
MATHEMATICAL SCIENCES**

**CODE : MMSC4**

**TOOL : PROJECT**

**DURATION : 3 WEEKS**

**MARKS : 50**

**This assessment tool consists of 6 pages.**

**INSTRUCTIONS AND INFORMATION FOR THE TEACHER.**

1. This investigation is based on Unit standard ID 7452 and ID 7448 can be given while the Unit standard title is taught.
2. Activity 1 will be marked using a rubric and Activity 2 will be marked using a memorandum.

**Activity 1**

- A.  $x = 1$  where  $0 \leq y \leq 6$

$x$	1	1	1	1	1	1	1
$y$	0	1	2	3	4	5	6

- B.  $x = 9$ ; where  $0 \leq y \leq 6$

$x$	9	9	9	9	9	9	9
$y$	0	1	2	3	4	5	6

- C.  $y = 0$ ; where  $1 \leq x \leq 9$

$x$	1	2	3	4	5	6	7	8	9
$y$	0	0	0	0	0	0	0	0	0

- D.  $y = 6$ ; where  $0 \leq x \leq 10$

$x$	1	2	3	4	5	6	7	8	9	10
$y$	6	6	6	6	6	6	6	6	6	6

- E.  $y = \frac{1}{2}x + 6$  where  $0 \leq x \leq 5$

$x$	0	1	2	3	4	5
$y$	6	6,5	7	7,5	8	8,5

- F.  $y = -\frac{1}{2}x + 11$ ; where  $5 \leq x \leq 10$

$x$	5	6	7	8	9	10
$y$	8,5	8	7,5	7	6,5	6

- G.  $x = 4$ ; where  $0 \leq y \leq 4$

$x$	4	4	4	4	4
$y$	0	1	2	3	4

H.  $x = 6$ ; where  $0 \leq y \leq 4$

$x$	6	6	6	6	6
$y$	0	1	2	3	4

I.  $y = 4$ ; where  $4 \leq x \leq 6$

$x$	4	5	6
$y$	4	4	4

J.  $x = 2$ ; where  $3 \leq y \leq 5$

$x$	2	2	2
$y$	3	4	5

K.  $x = 3$ ; where  $3 \leq y \leq 5$

$x$	3	3	3
$y$	3	4	5

L.  $y = 3$ ; where  $2 \leq x \leq 3$

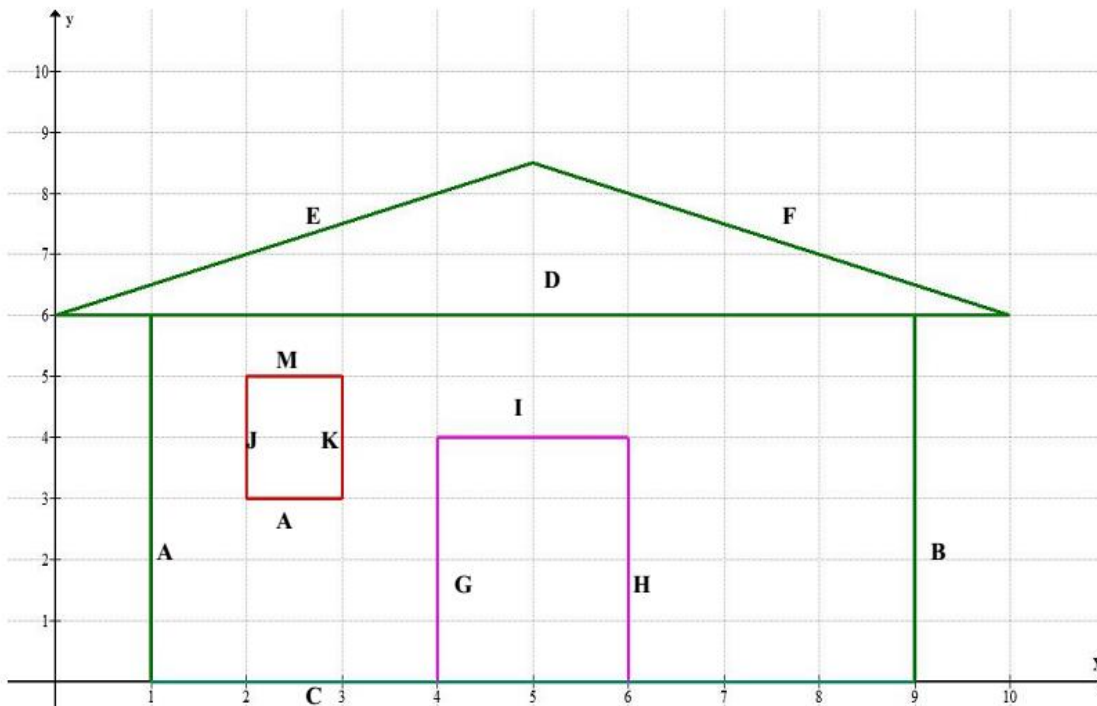
$x$	2	3
$y$	3	3

M.  $y = 5$ ; where  $2 \leq x \leq 3$

$x$	2	3
$y$	5	5



This is the resulting picture



Criteria	Level					Marks
	1	2	3	4	5	
<b>Coordinate tables</b>	At least one table completed correctly.	At least four tables completed correctly	At least eight tables completed correctly	At least 12 tables completed correctly	All tables completed correctly	$\frac{5}{2 \times \underline{\quad}}$
<b>Plotting of graphs</b>	At least one graph plotted correctly	At least four graphs plotted correctly	At least eight graphs plotted correctly	At least 12 graphs plotted correctly	All graphs are plotted correctly	$\frac{10}{\underline{\quad}}$
<b>Presentation and general impression</b>	Untidy work little effort taken with presentation.	Work in organised fashion, some effort taken	Partially presented	Work well presented, neat and complete	Excellent presentation	$\frac{5}{\underline{\quad}}$
<b>Labelling of graphs</b>	At least one graph is labelled.	At least four graphs are labelled	At least 8 graphs are labelled	At least 12 graphs are labelled	All graphs are labelled	$\frac{5}{\underline{\quad}}$
				TOTAL		$\frac{25}{\underline{\quad}}$

**ACTIVITY 2**

2.1	See Annexure C ✓✓✓✓								2 A each pattern	(4)												
2.2.1	(n)	1	2	3	4	5	6	25	1 A for two values 1 A for two values	(2)												
	(T <sub>n</sub> )	1	4	9	16	25 ✓	36	625 ✓														
2.2.2	B / Square numbers ✓								1 A Answer	(1)												
2.2.3	T <sub>n</sub> = n <sup>2</sup> ✓✓								2 A Answer	(2)												
2.2.4	n = √1296 ✓ n = 36 ✓								1 M Calculation 1 A Answer	(2)												
2.2.5	The number of small triangles T <sub>n</sub> is the square of its number pattern n in the sequence. ✓								1 J Explanation	(1)												
2.3	2.3.1	<table><tr><td>(n)</td><td>1</td><td>2</td><td>3 ✓</td><td>4</td><td>9</td></tr><tr><td>(d)</td><td>3</td><td>6</td><td>10</td><td>15 ✓</td><td>55 ✓</td></tr></table>						(n)	1	2	3 ✓	4	9	(d)	3	6	10	15 ✓	55 ✓	2 A Correct values		(3)
(n)	1	2	3 ✓	4	9																	
(d)	3	6	10	15 ✓	55 ✓																	
2.3.2	$d = \frac{n^2 + 3n + 2}{2}$ $d = \frac{(15)^2 + 3(15) + 2}{2} \checkmark$ $d = 136 \checkmark$								Substitution  Answer	(2)												
2.3.3	Dependent ✓								Answer	(1)												
2.3.4	C / Equilateral ✓								Answer	(1)												
2.3.5	If n = 21, then $d = \frac{21^2 + 3(21) + 2}{2} = 253 \checkmark$ If n = 22, then $d = \frac{22^2 + 3(22) + 2}{2} = 276 \checkmark$ There will not be a completed triangle with 261 dots. ✓								Calculation  Reasoning	(3)												
2.4	2.4.1	Translation ✓								Answer	(1)											
2.4.2	4 units right and 3 units down ✓								Answer	(1)												
2.4.3	It is enlarged by scale factor of 2 ✓								A Answer	(1) [25]												
											[50]											

# ANNEXURE C : Isometric Dot Paper

Name and Surname \_\_\_\_\_

Centre Name \_\_\_\_\_

