



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 : TEST

DURATION : 2 HOURS

MARKS : 50

This assessment tool consists of 4 pages.

INSTRUCTIONS AND INFORMATION FOR THE TEACHER

1. This test is set on Unit Standards
 - US ID 7448 SO1, 2 ,3,4and 3
 - US ID 7453 SO1,2and3
 - US ID 7464 SO1, and 3
 - US ID 7452 SO1,2 and 5
2. This task should be done individually and under controlled circumstances.
3. Consolidation of the Unit Standards, by working through previous papers, should also be done in conjunction with this task to prepare learners for the examination.

QUESTION 1

- 1.1 Complete the following patterns.

1.1.1	11✓A;18✓A	Each correct pattern	(2)
1.1.2	63✓A; -93 ✓A	Each correct pattern	(2)
1.2.1	$T_n = 2n^2 + 1$ $T_4 = 2(4)^2 + 1$ ✓A $T_4 = 32 + 1$ $T_4 = 33$ ✓A $T_5 = 2(5)^2 + 1$ ✓A $T_4 = 51$ ✓A	Correct substitution Correct answer Correct substitution Correct answer	(4)
1.3.1	$pattern\ 4 = 10$ ✓A $pattern\ 5 = 15$ ✓A	Correct answer	(2)
1.3.2	27 sides A✓	Correct answer	(1)
1.3.3	No✓A; there is no common difference in the pattern/the difference between any two consecutive terms is not the same✓A	Answer Correct reason	(2)

[13]**QUESTION 2**

2.1.1	John A✓	Correct answer	(1)
2.1.2	Tala✓A 150 seconds✓ A	Correct answer	(2)
2.1.3	5 seconds A✓	Correct answer	(1)
2.1.4	Tala overtook him A✓	Correct answer	(1)
2.1.5	John✓A was the first then comes Jack and then Tala✓A	Correct sequence Correct names	(2)

- 2.1.6 Jack✓ A, and he was the 3rd in the race✓ A (2)
- 2.1.7 John (0sec – 8sec
Tala (8sec– 150sec
- | | |
|------------------|-------------|
| Any correct name | (2)
[11] |
| Correct reason | |

QUESTION 3

- 3.1 Subtract: $4x^2 + 3x - 3$
 $\quad\quad\quad -6x^2 + 9x + 4$
 $\hline -2x^2 + 12x + 1$
 ✓A ✓A✓A (3)
- 3.2.1 $2a^2(a + 4)$
 $2a^3 + 8a^2$ ✓✓A Each correct term (2)
- 3.2.2 $(x + y)(2x + y)$
 $= 2x^2 + xy + 2xy + y^2$
 $= 2x^2 + 2xy + y^2$
 ✓ ✓✓ Correct term in the answer (3)
- 3.3 Solve for x:
- 3.3.1 $3x - 6 = 5x + 2$
 $3x - 5x = 2 + 6$
 $-2x = 8$ ✓
 $\frac{-2x}{-2} = \frac{8}{-2}$
 $x = -4$ ✓ Transposing of terms
 Correct answer (2)
- 3.3.2 $\frac{2x}{3} - 2 = 12$
 $\frac{2x}{3} = 2 + 12$ ✓
 $3 \times \frac{2x}{3} = 14 \times 3$
 $2x = 42$ ✓
 $\frac{2x}{2} = \frac{42}{2}$
 $x = 21$ ✓ Transposing of terms
 Simplification
 Correct answer (3)
- 3.3.3 $9 - x \geq 12$
 $-x \geq 12 - 9$ ✓
 $-x \geq 3$
 $\frac{-x}{-1} \leq \frac{3}{-1}$ ✓
 $x \leq -3$ ✓ Transposing of terms
 Correct sign(≤)
 Correct answer (3)

3.4 Factorize fully

$$\begin{aligned}
 3.4.1 \quad & 4x^2 + 8 \\
 & = 4x(x + 2) \\
 & \text{A✓} \quad \text{A✓}
 \end{aligned}$$

Correct common factor
Correct bracket (2)

$$\begin{aligned}
 3.4.3 \quad & x^2 - 4x - 12 \\
 & = (x - 6)(x + 2) \\
 & \checkmark\checkmark
 \end{aligned}$$

Correct brackets (2)
[20]

QUESTION 4

$$\begin{aligned}
 4.1.1 \quad & v = \pi r^2 h \text{ A✓} \\
 & v = \pi(1,5m)^2 \times 12m \checkmark \\
 & v = 27\pi m^3 \text{ or } 84,82m^3 \checkmark
 \end{aligned}$$

Correct formula
Correct substitution
Correct answer and units (3)

$$\begin{aligned}
 4.1.2 \quad & \text{Surface Area (SA)} = 2\pi r \times (r + h) \\
 & = 2\pi(1,5m) \times (1,5m + 12m) \checkmark \\
 & = 2\pi(1,5m) \times (13,5m) \\
 & = 40,5\pi m^2 / 127,32m^2
 \end{aligned}$$

Correct substitution
Correct calculation
Correct answer and units (3)
[6]

TOTAL : 50