



# 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**

**TASK : TEST**

**DURATION : 2 HOURS**

**MARKS : 50**

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

**INSTRUCTIONS AND INFORMATION**

1. Answer ALL the questions in the ANSWER BOOK.
2. Calculators may be used unless otherwise stated.
3. Show ALL calculations.
4. Number the answer correctly and clearly in accordance with the numbering system used in this question paper.

**QUESTION 1**

- 1.1 Complete the following patterns.

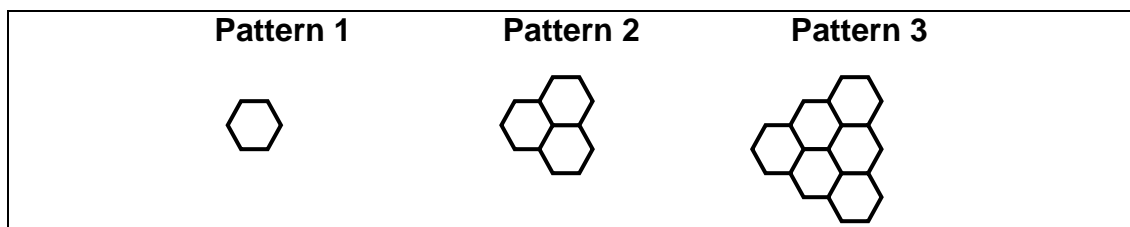
1.1.1 1; 3; 4; 7; \_\_\_\_; \_\_\_\_\_. (2)

1.1.2 -3; -9; -21; -39 - \_\_\_\_; \_\_\_\_\_. (2)

- 1.2 Use the formula  $T_n = 2n^2 + 1$  to calculate the missing numbers

1.2.1 3; 9; 19; \_\_\_\_; \_\_\_\_\_.73. (4)

- 1.3 The patterns below consist of the regular hexagons.  
HINT: Hexagons are six-sided figures.



1.3.1 How many hexagons will be in pattern 4 and 5? (2)

1.3.2 How many sides are in pattern 3? (1)

1.3.3 Is the sequence of sides linear? Give a reason for your answer (2)

**[13]**

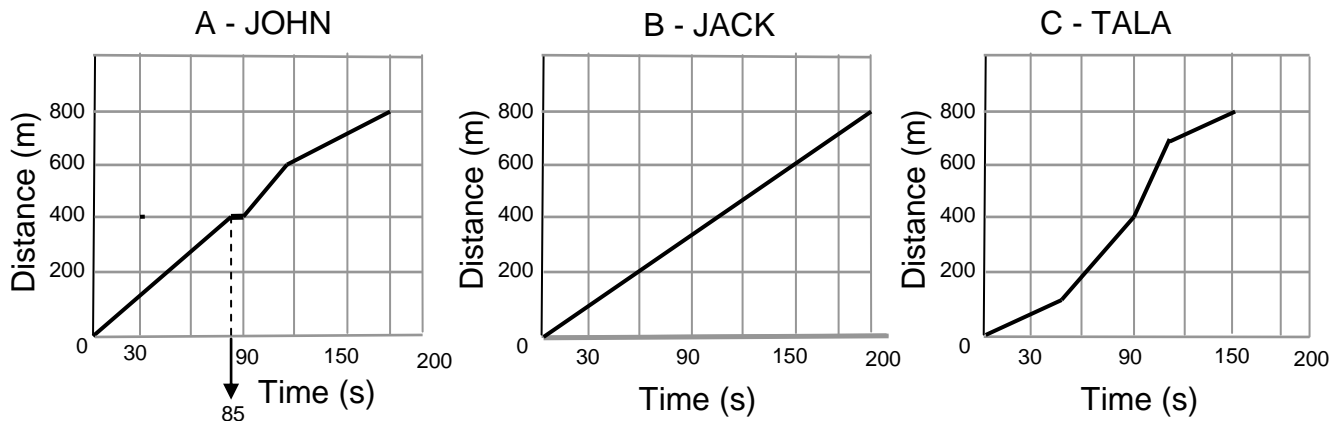
**QUESTION 2**

2.1 The graphs below show the times taken by three learners taking part in an 800m athletics race.

Graph A represents the time taken by John.

Graph B represents the time taken by Jack.

Graph C represents the time taken by Tala.



- 2.1.1 Who started off the fastest? (1)
- 2.1.2 Who won the race and how long did it take him to complete the race? (2)
- 2.1.3 John tripped and fell and for how long did he stop while he was on the ground? (1)
- 2.1.4 Describe what happened after John fell in relation to the other two runners. (1)
- 2.1.5 Describe the position of the each runner after 200m. (2)
- 2.1.6 Who ran at a constant speed and at what position did he finish the race? (2)
- 2.1.7 Determine the time intervals in which John was the fastest and in which Tala was the fastest. (2)
- [11]**

**QUESTION 3**

- 3.1 Find the sum of  $4x^2 + 3x - 3$  and  $-6x^2 + 9x + 4$ . (3)
- 3.2 Find the product of the following expressions:
- 3.2.1  $2a^2(a + 4)$  (2)
- 3.2.2  $(x + y)(2x + y)$  (3)

3.3 Solve for  $x$ :

$$3.3.1 \quad 3x - 6 = 5x + 2 \quad (2)$$

$$3.3.2 \quad \frac{2x}{3} - 2 = 12 \quad (3)$$

$$3.3.3 \quad 9 - x \geq 12 \quad (3)$$

3.4 Factorize fully:

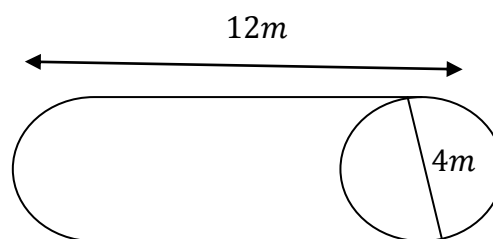
$$3.4.1 \quad 4x^2 + 8x \quad (2)$$

$$3.4.2 \quad x^2 - 4x - 12 \quad (2)$$

**[20]**

#### QUESTION 4

4.1 Look at the cylindrical fuel tank, the diameter of the cylinder is 3  $m$  and the length of the cylinder is 12  $m$  and answers the questions that follow. The diagram of the tank has been drawn below the picture.



4.1.1 Calculate the volume of this cylinder. (3)

4.1.2 Calculate the total surface area of the tanker using this formula, (3)  
 $A = 2\pi r \times (r + h)$  where  $\pi = 3,14$ . [6]

**TOTAL : 50**