



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

GENERAL EDUCATION AND TRAINING CERTIFICATE

NQF LEVEL 1

AET LEVEL 4 SITE-BASED ASSESSMENT

**LEARNING AREA : MATHEMATICS AND
MATHEMATICAL SCIENCES**

CODE : MMSC4

TOOL : WORKSHEET

DURATION : 2 HOURS

MARKS : 50

This assessment tool consists of 4 pages.

Activity 1: Interpreting and investigating of graphs

| | | | |
|-----|--|--|-----|
| 1.1 | 48cm ✓A | | (1) |
| 1.2 | Yes, because the graph is a straight line. | | (1) |
| 1.3 | $\frac{48-0}{0-24} \checkmark A = \frac{48}{-24} = -2$ $\therefore 2\text{cm/s} \checkmark C$ | Correct substitution Correct answer | (2) |
| 1.4 | As we move from left to right the straight line graph is going down ✓✓CA | | (2) |
| 1.5 | 24sec ✓A | | (1) |
| 1.6 | The height of water decreasing by 2cm in every one second. ✓A | | (1) |
| 1.7 | $y = -2x + 48 \checkmark \checkmark CA$ | | (2) |

| | | | | |
|-----|---------------------------|--|--|-----|
| | 1.8.1 | $y = -2x + 48$ $y = -2(0) + 48 \checkmark A$ $y = 48 \text{ cm} \checkmark CA$ | Correct substitution Correct answer | (2) |
| | 1.8.2 | $y = -2x + 48$ $0 = -2x + 48 \checkmark A$ $2x = +48$ $\therefore x = 24 \text{ sec} \checkmark CA$ | Correct substitution Correct answer | (2) |
| 1.9 | Continuous $\checkmark A$ | | | (1) |

Activity 2: Theorem of Pythagoras

| | | | | |
|-----|-------|---|-----------------------------------|-----|
| 2.1 | 2.1.1 | $QR^2 = (15\text{cm})^2$ $QR^2 = 225 \text{ cm}^2 \checkmark A$ | Correct answer | (1) |
| | 2.1.2 | $PQ^2 + PR^2 = (8 \text{ cm})^2 + (10 \text{ cm})^2 \checkmark A$ $= 64 \text{ cm}^2 + 100 \text{ cm}^2$ $= 164 \text{ cm}^2 \checkmark A$ | Squaring Correct answer | (2) |
| | 2.1.3 | James is incorrect ✓A $225 \text{ cm}^2 \neq 164 \text{ cm}^2 \checkmark A$ $\therefore QR^2 \neq PQ^2 + PR^2$ OR ΔPQR is not a right, because the square of the longest side is not equal to the sum of the squares of the other two sides ✓ | Correct answer Squaring/Reason | (2) |

| | | | | | | | | | | | | | | | | | | | |
|-----|-------|---|--|-------------|-----|---|---|---|---|----|-----------------|----|----|-----------------|----|----|-----------------|---|-----|
| | 2.1.4 | $DE^2 = EF^2 - DF^2$ $DE^2 = 9^2 - 7^2 \checkmark$ $= 81 - 49$ $= 32$ $= \sqrt{32} \checkmark$ $DE = 5,66 \checkmark$ | Substitution Squaring Answer | (3) | | | | | | | | | | | | | | | |
| 2.2 | | <table><tr><td>x</td><td>y</td><td>r</td></tr><tr><td>3</td><td>4</td><td>5</td></tr><tr><td>9</td><td>12</td><td>15 \checkmark</td></tr><tr><td>12</td><td>16</td><td>20 \checkmark</td></tr><tr><td>15</td><td>20</td><td>25 \checkmark</td></tr></table> | x | y | r | 3 | 4 | 5 | 9 | 12 | 15 \checkmark | 12 | 16 | 20 \checkmark | 15 | 20 | 25 \checkmark | Correct row Correct row Correct row | (3) |
| x | y | r | | | | | | | | | | | | | | | | | |
| 3 | 4 | 5 | | | | | | | | | | | | | | | | | |
| 9 | 12 | 15 \checkmark | | | | | | | | | | | | | | | | | |
| 12 | 16 | 20 \checkmark | | | | | | | | | | | | | | | | | |
| 15 | 20 | 25 \checkmark | | | | | | | | | | | | | | | | | |
| 2.3 | 2.3.1 | 12m \checkmark | | (1) | | | | | | | | | | | | | | | |
| | 2.3.2 | $CE^2 = (16m)^2 + (12m)^2 \checkmark$ $= 256 + 144$ $= 400m^2$ $CE = \sqrt{400}$ $= 20m \checkmark$ | Substitution/ Squaring Correct answer | (2) | | | | | | | | | | | | | | | |
| | 2.3.3 | No, \checkmark AC reaches further up the vertical flag pole than CE from the same position, so it is longer than CE \checkmark OR $CE = 20m$ $CA = 29m$ $CA > CE$ | No, relevant reason | (2) [16] | | | | | | | | | | | | | | | |

Activity 3: Word Sums

| | | | | |
|--|-----|---|--|-----|
| | 3.1 | Let the certain number be x $x + 3$ $x + 3 + 5 \checkmark$ $x + 3 + 5 = 19 \checkmark$ $x + 8 = 19$ $x = 19 - 8$ $x = 11 \checkmark$ | Identification of values Equation Answer | (3) |
| | 3.2 | $3x + 15 \checkmark$ $6x - 10 \checkmark$ $3x + 15 = 6x - 10 \checkmark$ $3x + 15 - 3x = 6x - 10 - 3x$ $15 = 3x - 10$ $15 + 10 = 3x - 10 + 10 \checkmark$ $25 = 3x$ $\therefore x = \frac{25}{3} \checkmark$ | Identification Identification Equation Simplification Answer | (5) |

| | | | | | | | | | | | | | |
|-------|----------|---|--|---------|----|------|----------|--------------|-------|-----|---------|--|-----|
| | 3.3 | <table><tr><td></td><td>Age Now</td><td>+6</td></tr><tr><td>Paul</td><td>$x + 23$</td><td>$x + 23 + 6$</td></tr><tr><td>Sihle</td><td>x</td><td>$x + 6$</td></tr></table> <p style="text-align: center;">✓✓</p> <p>Paul = 2(Sihle) $x + 29 = 2(x + 6)$ ✓ $x + 29 = 2x + 12$ $29 - 12 = x$ $x = 17$ Sihle is 17 ✓ and Paul is 17+23=40 ✓</p> | | Age Now | +6 | Paul | $x + 23$ | $x + 23 + 6$ | Sihle | x | $x + 6$ | <p>2 completing table correctly Equating 2 Answers</p> | (5) |
| | Age Now | +6 | | | | | | | | | | | |
| Paul | $x + 23$ | $x + 23 + 6$ | | | | | | | | | | | |
| Sihle | x | $x + 6$ | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|--------|----------|--|--|---------|----|--------|-----|---------|-----|----------|--------------|--|---------------------|
| | 3.4 | <table><tr><td></td><td>Age Now</td><td>-4</td></tr><tr><td>Father</td><td>x</td><td>$x - 4$</td></tr><tr><td>Son</td><td>$56 - x$</td><td>$56 - x - 4$</td></tr></table> <p style="text-align: center;">✓✓</p> <p>Father = 3(Son) $x - 4 = 3(56 - x - 4)$ ✓ $x - 4 = -3x + 156$ $4x = 160$ $x = 40$ Father is 40 ✓ and son is $56 - 40 = 16$ ✓</p> | | Age Now | -4 | Father | x | $x - 4$ | Son | $56 - x$ | $56 - x - 4$ | <p>2 Completing table correctly</p> <p>Equating</p> <p>2 Answers</p> | <p>(5) [18]</p> |
| | Age Now | -4 | | | | | | | | | | | |
| Father | x | $x - 4$ | | | | | | | | | | | |
| Son | $56 - x$ | $56 - x - 4$ | | | | | | | | | | | |

TOTAL: 50