



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 : PROJECT

DURATION : 3 WEEKS

MARKS : 50

This assessment tool consists 5 of pages.

INSTRUCTIONS AND INFORMATION FOR THE TEACHERS

1. This task must be completed over a period of 3 weeks.
2. It is important that a class discussion be held and the progress of the learners is monitored at regular interval.

ACTIVITY 1

1.1 1.1.1 MEASUREMENT OF THE (Actual distance)

	Distance on plan 1 cm (10 mm)	Actual distance 100 cm (1 m)
Kitchen tile floor: Length	5cm (70 mm)	5 m✓
Kitchen tile floor: Breadth	2,5 (25 mm)	2,5 m✓
Bedroom 2: Length	4,5cm (45 mm)	4,50 m✓
Bedroom 2:Breadth	4,5 cm (45 mm)	4,50 m✓
Width of the inside door	13 mm	1,3 m✓
Length of the kitchen window	15 mm (1,5 cm)	150 cm (1,5 m)✓

(6)

1.1.2 Square or **rectangle**

(1)

1.1.3 To show direction to which the door opens✓

(1)

1.1.4 The perimeter of the bedroom 2
 $P = 4,5 \text{ cm} + 4,5 \text{ cm} + 4,5 \text{ cm} + 4,5 \text{ cm}✓$
 $P = 18 \text{ cm}✓/18 \text{ m}$
 OR
 $P = 4(4,5 \text{ cm})✓$
 $P = 18\text{cm}✓/18 \text{ m}$

(2)

1.1.5 The area of kitchen tile floor:

$$A = 5\text{m} \times 2,5\text{m}$$

$$= 12,5\text{m}^2$$

The area of LIVING ROOM TILE FLOOR:

$$A = 6 \text{ m} \times 4,8 \text{ m}$$

$$= 28,8 \text{ m}^2$$

$$\text{The area of kitchen tile floor and living room tile floor}$$

$$= 12,5 \text{ m}^2 + 28,8 \text{ m}^2$$

$$= 41,3 \text{ m}^2$$

1.1.6 Cost = $41,3\text{m}^2 \times R105,00✓ = R4\ 366,50✓$

(2)

1.1.7 Area of the tiles = $50\text{ cm} \times 50\text{ cm} = 2\,500\text{ cm}^2$ OR $=0,5\text{m} \times 0,5 = 0,25\text{m}^2$
Area of the Kitchen and living Tile = $41,3\text{ m}^2$

$$\frac{41\,3000}{2\,500} \checkmark \quad \text{OR} \quad \frac{41,3}{0,25}$$

$$= 165,2$$

Therefore 166 tiles will be needed ✓ (2)

1.2 Area of circle = $\pi \times r^2$
 $= 3,14 \times 6^2 \checkmark$
 $= 113,04 \checkmark \text{ cm}^2$ (2)

1.3 3 hours 45 minutes after midnight ✓
 Accept: quarter to four ✓ (1)

1.4 (a) 23 hours and 10 minutes after midnight, which is 11 hours and 10 minutes after noon (midday) **ten minutes after 9 in the evening** ✓
 (b) 21:00/9.p.m ✓ (in digital time) (1)

(c) 4:50 p.m./16:50 ✓
 (3 x 1) (3)
[22]

ACTIVITY 2

2.1 2.1.1 Rectangle ✓
 Triangle ✓

2.1.2 Calculating Volume of Rectangular prism

$$\begin{aligned} \text{Volume} &= (l)(b)(h) \\ &= (10\text{ m})(8\text{ m})(5\text{ m}) \checkmark \\ &= 400\text{ m}^3 \checkmark \end{aligned}$$

Calculating Volume of Triangular prism

$$\text{Volume} = \frac{1}{2} (10\text{ m})(8\text{ m})(3)$$

$$\text{Volume} = 120\text{ m}^3 \checkmark$$

Calculating Volume of building.

$$\begin{aligned} &\text{Volume rectangular prism} + \text{Volume triangular prism} \\ &= 400\text{ m}^3 + 120\text{ m}^3 \\ &= 520\text{ m}^3 \checkmark \end{aligned} \quad (4)$$

$$\begin{aligned}
 2.1.3 \quad length^2 &= (3\text{ m})^2 + (4\text{ m})^2 \checkmark \\
 length^2 &= 9\text{ m}^2 + 16\text{ m}^2 \\
 length^2 &= 25\text{ m}^2 \\
 length &= \sqrt{25\text{ m}^2} \checkmark \\
 length &= 5\text{ m} \checkmark
 \end{aligned}
 \tag{3}$$

2.1.4 Calculate the area of the four sides of the building and add to the area of roof to get the total surface area as required.

$$\text{Area of roof} = 5\text{ m} \times 10\text{ m} \times 2 = 100\text{ m}^2 \checkmark$$

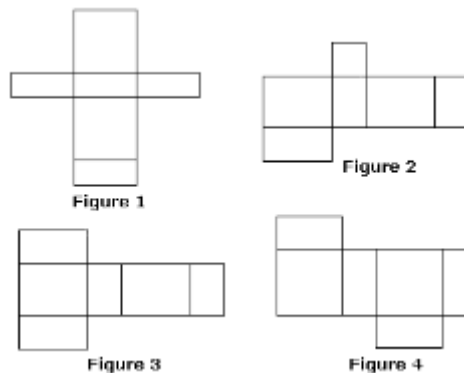
$$\text{Area of two rectangular sides} = 10\text{ m} \times 5\text{ m} \times 2 = 100\text{ m}^2 \checkmark$$

Area of two sides with triangular top:

$$\begin{aligned}
 2 \times [(5\text{ m} \times 8\text{ m}) + \frac{1}{2}(8\text{ m})(3\text{ m})] \\
 &= 2 \times [40\text{ m}^2 + 12\text{ m}^2] \\
 &= 2 \times [52\text{ m}^2] \\
 &= 104\text{ m}^2 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 \therefore \text{total surface area of outside building including roof} \\
 &= 100\text{ m}^2 + 100\text{ m}^2 + 104\text{ m}^2 \\
 &= 304\text{ m}^2 \checkmark
 \end{aligned}
 \tag{4}$$

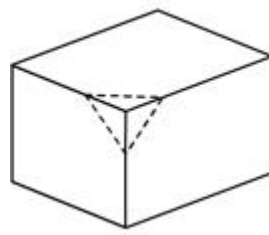
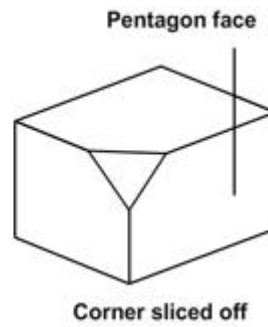
2.2.1 A net for the part of the original polyhedron that was sliced off.



- ✓One mark for square base
 - ✓One mark for 4 side face quad or Trapeziums
 - ✓One mark for the top block made up of 5 squares
- (3)

2.2.2 The sliced Polyhedron has 7 faces, ✓ 10 vertices ✓ and 15 edges ✓ (3)

2.2.3 Pentagon face

**FIGURE C****FIGURE D**

- (a) One mark for showing the vertical dotted lines where the block was sliced. ✓
 (b) One mark drawing correct shape ✓

(2 x 1) (2)

FIGURES	TYPES	FACES (F)	VERTICES (V)	EDGES (E)
A	Rectangular block	6	8✓	12✓
B	Sliced polyhedron with a rectangular face	7	10	15
D	Sliced polyhedron with pentagonal face	7✓	10✓	15✓

Relationship: $F + V - E = 2$ OR $F + V - 2 = E$ ✓✓(7)
[28]**TOTAL: 50**