



SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE
SUID-AFRIKAANSE KOMPREENSIEWE ASSESSERINGSINSTITUUT

**Adult Basic Education and Training (ABET)
Site-Based Assessment
Portfolio of Evidence**

Mathematical Literacy: NQF Level 1
Total: 50 marks
Duration: 5 hours
Task 3: Project

Learner Information

Name : _____
Surname : _____
**Identity/
Passport Number** : _____
Employee Number : _____
Company : _____
Centre : _____
Date : _____

Declaration

I declare that this portfolio of evidence is my own work: _____

Signature



INSTRUCTIONS

1. This task consists of **TWO ACTIVITIES**.
2. Complete **ALL** questions in each **ACTIVITY**.
3. Learners should work on **ALL** activities individually.
4. You may use a calculator but show **ALL** your working.
5. Round off your answers to **TWO** decimal places (where necessary).
6. Write your answer in the simplest form.
7. Adhere to the numbering system used in this question paper.



ACTIVITY 1: BREATHING CLEAN AIR**1.1 Oxygen cylinders**

An oxygen cylinder used for nursing contains 12 litres of oxygen. The container consists of a cylinder with a hemisphere (half sphere) on top of it.

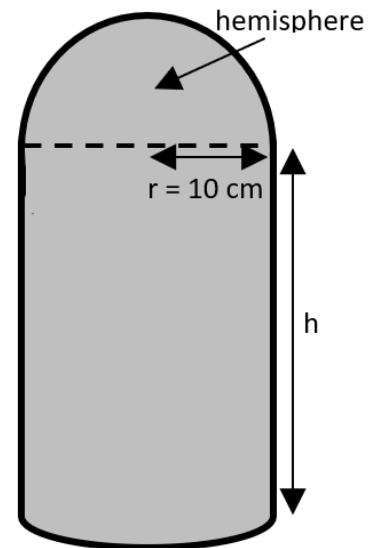
The hemisphere has a capacity of 2 litres.

The cylinder has height h cm and radius 10 cm.

Formulae:

Volume of cylinder = $\pi r^2 h$ where $\pi = 3,14$

Area of circle = πr^2



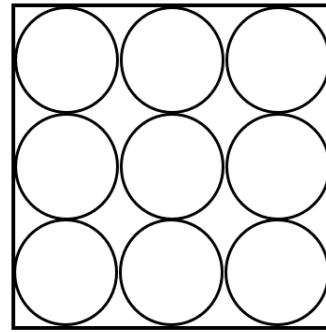
- 1.1.1 The whole container has a capacity of 12 litres. Determine the capacity of the cylindrical section. Show working.

(2)

- 1.1.2 If the cylindrical section has capacity 10 litres, determine the height, h , of this section. Give the answer in centimetres, correct to 1 decimal place.
1 litre = 1 000 cm^3

(5)

- 1.1.3 Nine of these oxygen cylinders are to be placed in a square storage space, standing upright next to each other, so that they just touch each other.



View of the storage space from above.

- (a) Determine the *actual* floor area covered by the 9 cylinders.

(3)

- (b) What is the length of the side of the storage space?

(2)

- (c) Determine the area of the floor that is NOT covered by the cylinders.

(4)

1.2 Measuring oxygen levels in the blood

A pulse oximeter is a device that clips onto your finger. It provides two measurements: the level of oxygen in your blood, and your pulse or heart rate.



Source: www.medcitynews.com

The table shows details of the measurement of temperature, oxygen levels and pulse.

Measuring instrument	What it measures	Units of measurement	Normal for adults	Normal for children under 15
Thermometer	Temperature	Degrees Celsius	36,1 °C - 37,2°C	36,5 °C - 37,5°C
Pulse oximeter	Level of oxygen in the blood	No units (percentage)	95% - 99%	97% - 99%
	Pulse or heart rate	Beats per minute	(At rest) 50 - 90 beats per minute	(At rest) 70 - 100 beats per minute

1.2.1 What instrument is used to measure temperature?

(1)

1.2.2 Dudu is an adult patient at a clinic. Her measurements are:
Temperature 36,5°C, pulse at rest 73 beats per minute, oxygen level 96%.
Is Dudu within the normal limits in all 3 measurements? Answer Yes or No.

(1)

1.2.3 Which of the following readings is OUTSIDE the normal limits? Circle the correct answer.

- (A) Temperature 37,9°C
- (B) Pulse at rest: 85 beats per minute
- (C) Oxygen level 97,9%

(1)

1.2.4 Circle the correct statement regarding the normal measure for children under 15 years old:

- A) The normal temperature, pulse at rest and oxygen level are all slightly higher for children than for adults.
- B) The normal temperature, pulse at rest and oxygen level are all slightly lower for children than for adults.
- C) The normal temperature and pulse at rest are slightly higher for children than for adults, but the oxygen level is slightly lower for children than for adults.
- D) The normal temperature and pulse at rest are slightly lower for children than for adults, but the oxygen level is slightly higher for children than for adults.

(2)

1.2.5 When you exercise, your heart rate increases up to a certain maximum level. There is a formula for calculating the predicted maximum heart rate for adults.

Formula: $220 - \text{your age in years} = \text{predicted maximum heart rate.}$

Example: for age 45, predicted maximum heart rate is $220 - 45 = 175$ beats per minute.

Use this formula to answer the following questions. **Show working.**

- (a) Zodwa is 35 years old. What is her predicted maximum heart rate?

(2)



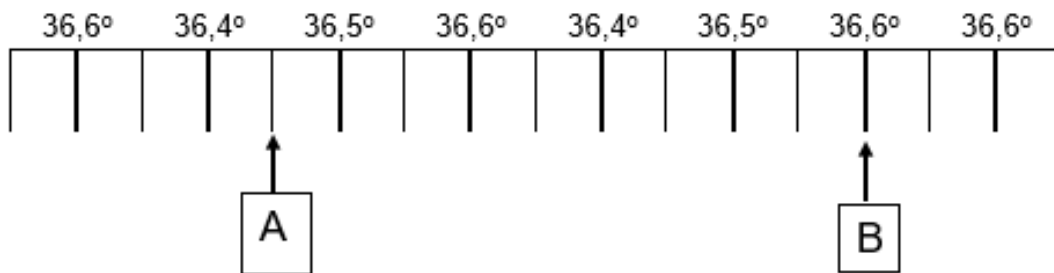
- (b) Simphiwe has a heart rate of 193 beats per minute after running for some time. Estimate his age.

(3)

- c) **True or False:** The older you get, the higher the predicted maximum heart rate when you exercise.

(1)

- 1.3 The scale shows temperatures in degrees Celsius. Andile records his temperature each day. Determine the amount by which his temperature increased from A to B, as accurately as possible on this scale.



(2)

TOTAL MARKS FOR ACTIVITY 1

(29)

ACTIVITY 2: MIXING CONCRETE

2.1 The concrete used to build some outdoor classrooms consists of **cement : sand : stone** in the ratio **2 : 3 : 6** by volume. Determine the following:

- (a) If 9 wheelbarrows of sand are used, how many wheelbarrows of stone must be used?

(2)

- (b) How many wheelbarrows of cement are required to mix with 6 wheelbarrows of sand and 12 wheelbarrows of stone?

(2)

- (c) 1 bag of cement costs R76,50. Jabu buys 4 bags of cement. How much change will he get if he pays R500,00?

(2)

- (d) One bag of cement has a volume of $0,2\text{m}^3$. How much sand must be used with 1 bag of cement? Give the answer in m^3 .

(2)

- (e) How many cubic metres of stone will be required to produce 1m^3 of concrete? Give the answer correct to 2 decimal places.



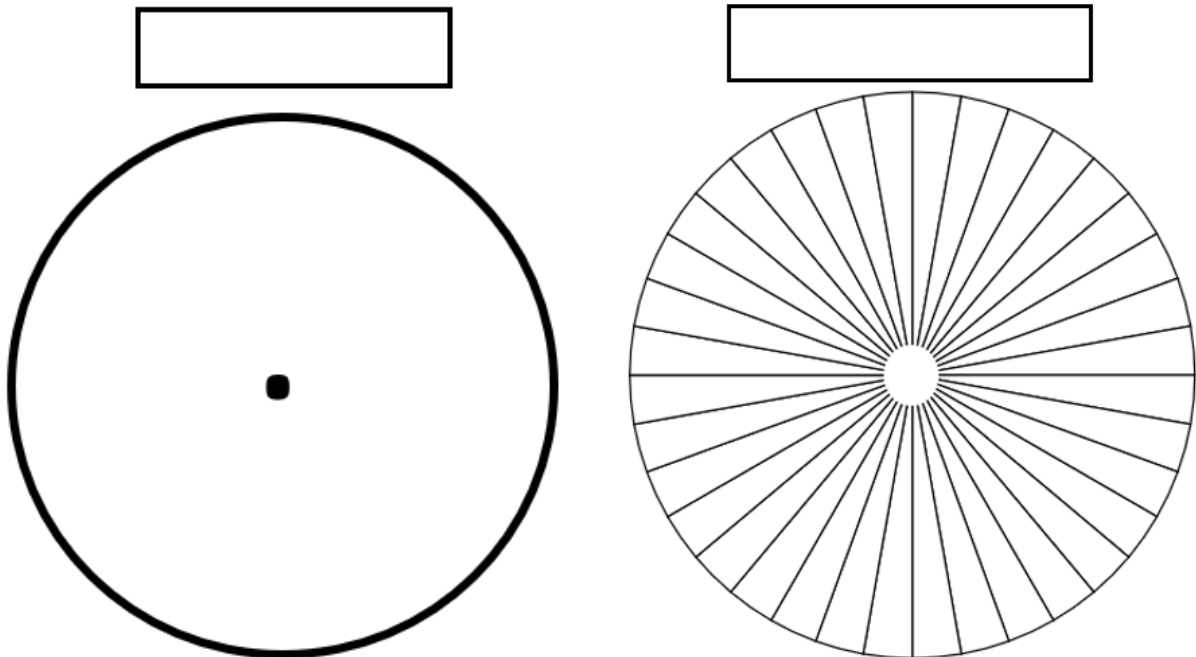
(2)

2.2 You are going to draw a pie chart showing the correct ratio of cement, sand and stone used to make the concrete. Follow the instructions below. Use the same ratio as before, cement : sand : stone in the ratio 2 : 3 : 6 by volume.

- (a) Calculate the correct angle of the sector for cement, rounded off to the nearest degree. Show working.
-
-
-

(3)

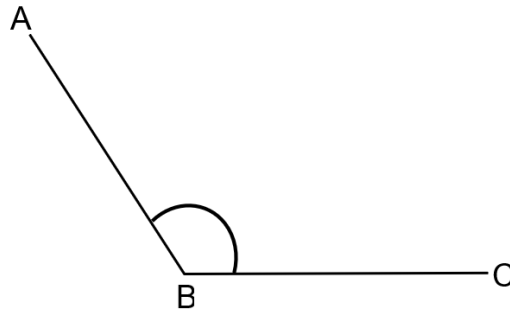
- (b) Draw a pie chart showing the correct ratio of cement, sand and stone used to make the concrete. You may use either of the circles provided. The second circle has angles of 10° drawn in for you. Label the pie chart fully.



(5)

2.3 Refer to the diagram of angle \widehat{ABC} .

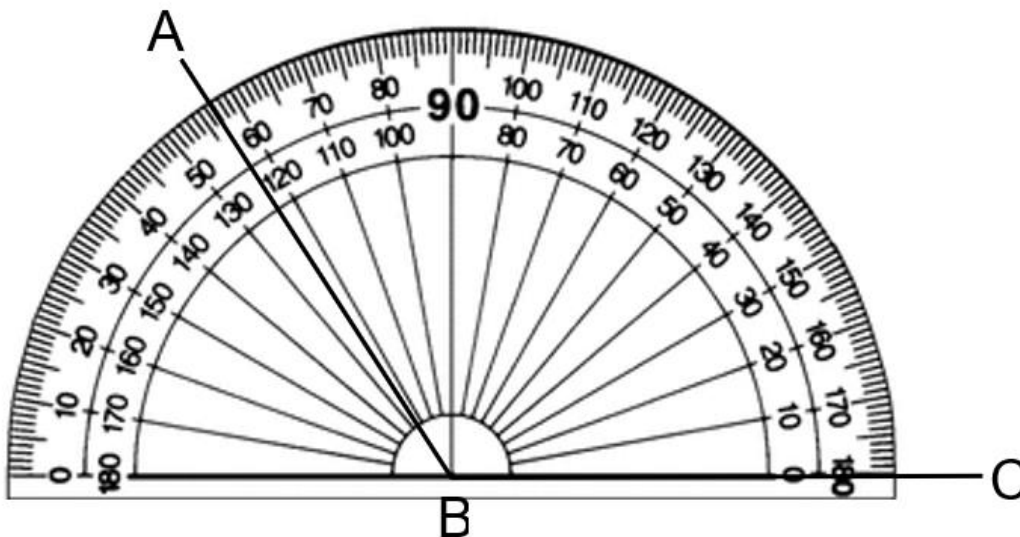
(a) What type of angle is \widehat{ABC} ? Circle the correct answer.



- A Reflex
- B Obtuse
- C Acute
- D Revolution

(1)

(b) Use the given protractor to measure the size of angle \widehat{ABC} .



(2)

TOTAL MARKS FOR ACTIVITY 2

(21)

TOTAL MARKS FOR TASK 3

[50]

TOTAL FOR TASK 3: 50 MARKS

	Activity	Maximum Mark	Learner's Mark	Moderated Mark
Task 3	Activity 1	29		
	Activity 2	21		
	Total: Task 3	50		

