higher education & training
Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

Tshwane South TVET College
"achieve the future"

SUBJECT: FOUNDATIONAL MATHS

LEVEL: PLP

MODULE/CHAPTER NO: MODULE 3

UNIT 3: CALCULATE THE AREA OF TWO-DIMENSIONAL SHAPES

UNIT 3: CALCULATE THE AREA OF TWO-DIMENSIONAL SHAPES

After completing this topic, you will be able to:

1. Know what area is

2. Calculate the area of a

a. Rectangle
b. Square
c. Triangle
d. Circle (circumference)
e. Trapezium
f. Parallelogram

UNIT 3: CALCULATE THE AREA OF TWO-DIMENSIONAL SHAPES

3.4 Area of the Circle

The area of a circle is:

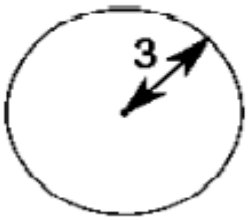
$\pi \times$ the radius squared: $A = \pi \times r^2$

or, when you know the diameter: $A = \pi \times \frac{D^2}{4}$ (In Engineering Science we mostly use diameter and not radius in our formulas.)

Example:

What is the area of a circle with radius of $3\ m$?

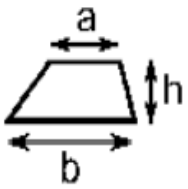
$$\text{Area} = \pi \times r^2$$
$$= \pi \times 3^2$$
$$= 28{,}274\ m^2$$



Radius $= r = 3$

3.5 Area of the Trapezium

The area is the average of the two horizontal lengths times the height:



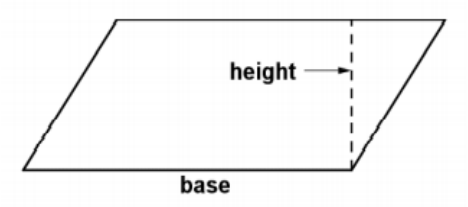
Area = $\frac{a+b}{2} \times h$

Example:

A trapezium's two horizontal sides are $6\ m$ and $4m$, and it is $3m$ high. What is its area?[ii]

$$\text{Area} = \frac{6m+4m}{2} \times 3$$
$$= 5 \times 3$$
$$= 15\ m^2$$

3.6 Area of a parallelogram



The area is the **base times the height**:

Take note that the **height** is the **perpendicular distance between the base and the opposite side of the parallelogram.**

$$\text{Area} = b \times h$$

Example:

A parallelogram has a base of $6\ m$ and is $3\ m$ high, what is its area?

$$\text{Area} = b \times h$$
$$= 6 \times 3$$
$$= 18\ m^2$$