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:

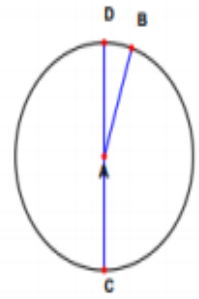
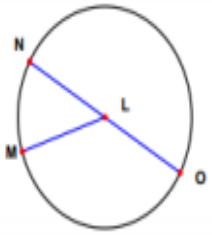
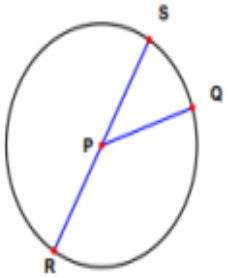
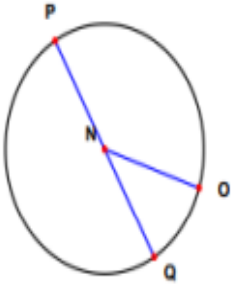
1. Know what area is

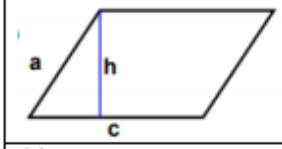
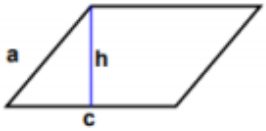
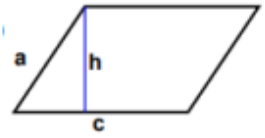
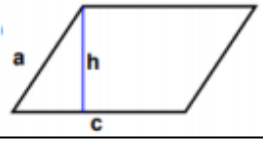
2. Calculate the area of a

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

UNIT 3: CALCULATE THE AREA OF TWO-DIMENSIONAL SHAPES

EXERCISE 3.1

	Use the π – key on your calculator File all your work behind this page.
1.  Radius: **Diameter: 4 cm** Area:	2.  Radius: **Diameter 28 mm** Area:
3.  **Radius 3 cm** Diameter: Area:	4.  **Radius 6 mm** Diameter: Area:
5. A square has side length of $8\ cm$. Calculate the area.	6. A square has side length of $45\ mm$. Calculate the area.
7. A rectangle is $4\ m$ wide and $2\ m$ high. Calculate the area.	8. A rectangle is $8\ m$ wide and $6\ m$ high. Calculate the area.

9. $a = 61{,}53\ cm;\ c = 94;\ cm\ h = 57\ cm$ Calculate the area.  	10. $a = 59{,}26\ mm;\ c = 90\ mm;\ h = 53\ mm$ Calculate the area. 
11. $a = 60{,}8\ mm;\ c = 84\ mm;\ h = 56\ mm$ Calculate the area.  	12. $a = 51{,}32\ cm;\ c = 99\ cm;\ h = 47\ cm$ Calculate the area. 

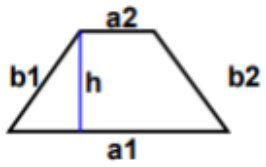
13.

$a1 = 92\,cm;\ a2 = 31\,cm;$

$b1 = 51{,}59\,cm;\ b2 = 52{,}23\,cm;$

$h = 42\,cm$

Calculate the area.



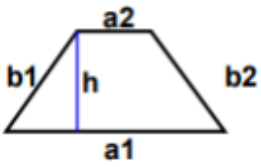
14.

$a1 = 90\,mm;\ a2 = 39\,mm;$

$b1 = 57{,}24\,mm;\ b2 = 46{,}29\,mm;$

$h = 44\,mm$

Calculate the area.



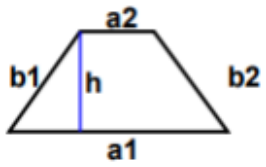
15.

$a1 = 95\,mm;\ a2 = 45\,mm;$

$b1 = 58{,}16\,mm;$

$b2 = 48{,}2\,mm\ h = 46\,mm$

Calculate the area.

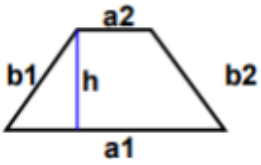


16.

$a1 = 97\,cm;\ a2 = 46\,cm;$

$b1 = 64{,}13\,cm;\ b2 = 48{,}74\,cm;\ h = 48\,cm$

Calculate the area.

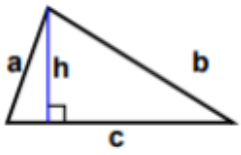


17.

$a = 50{,}99\,mm;\ b = 91{,}41\,mm;$

$c = 95\,mm;\ h = 48\,mm$

Calculate the area.

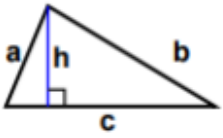


18.

$a = 45{,}6\,cm; b = 81{,}85\,cm;\ c = 88\,cm;$

$h = 42\,cm$

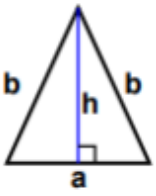
Calculate the area.



19.

$a = 59\,cm;\ b = 74\,cm;\ h = 66{,}2\,cm$

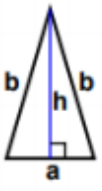
Calculate the area



20.

$a = 41\,cm;\ b = 80\,cm;\ h = 74{,}7\,cm$

Calculate the area



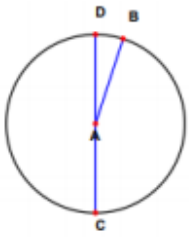
SOLUTIONS

Exercise 3.1

Use the π – key on your calculator

File all your work behind this page.

1.



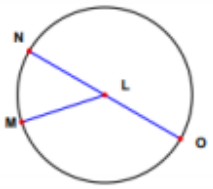
Radius: $2\ cm$

Area $= \pi r^2$

$= \pi \times 2^2$

$= 12{,}566\ cm^2$

2.



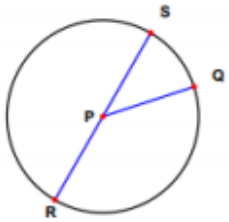
Radius: $14\ mm$

Area $= \pi r^2$

$= \pi \times 14^2$

$= 615{,}752\ mm^2$

3.



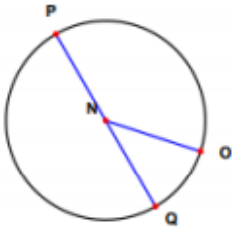
Diameter: $6\ cm$

Area $= \pi r^2$

$= \pi \times 3^2$

$= 28{,}274\ cm^2$

4.



Diameter: $12\ mm$

Area $= \pi r^2$

$= \pi \times 6^2$

$= 113{,}1\ mm^2$

5.

A square has side length of $8cm$.

Area $= s^2$

$= 8^2$

$= 64\ cm^2$

6.

A square has side length of $45mm$.

Area $= s^2$

$= 45^2$

$= 6361{,}725\ mm^2$

7.

A rectangle is 4 m wide and 2 m high: Area $=$

4×2

$= 8m^2$

8.

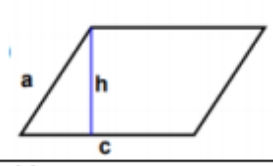
A rectangle is 8 m wide and 6 meters high. Area $=$

8×6

$= 48\ m^2$

9.

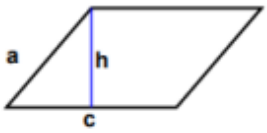
$a = 61{,}53\ cm;\ c = 94;\ cm\ h = 57\ cm$



$$\text{Area} = b \times h$$
$$= 94 \times 57$$
$$= 5358\ cm^2$$

10.

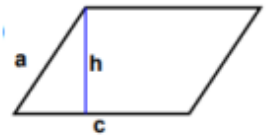
$a = 59{,}26\ mm;\ c = 90\ mm;\ h = 53\ m$



$$\text{Area} = b \times h$$
$$= 90 \times 53$$
$$= 4770\ mm^2$$

11.

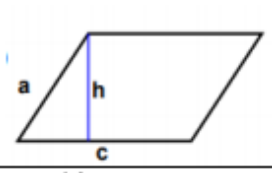
$a = 60{,}8\ mm;\ c = 84\ mm;\ h = 56\ m$



$$\text{Area} = b \times h$$
$$= 84 \times 56$$
$$= 4704\ mm^2$$

12.

$a = 51{,}32\ cm;\ c = 99\ cm;\ h = 47\ cm$



$$\text{Area} = b \times h$$
$$= 99 \times 47$$
$$= 4653\ cm^2$$

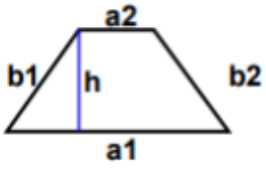
13.

$a1 = 92\ cm;\ a2 = 31\ cm;$

$b1 = 51{,}59\ cm;\ b2 = 52{,}23\ cm;$

$h = 42\ cm$

$$\text{Area} = \frac{a_1+a_2}{2} \times h$$
$$= \frac{92+31}{2} \times 42$$
$$= 2583\ cm^2$$



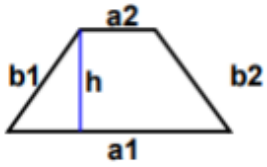
14.

$a1 = 90\ mm;\ a2 = 39\ mm;$

$b1 = 57{,}24\ mm;\ b2 = 46{,}29\ mm;$

$h = 44\ mm$

$$\text{Area} = \frac{a_1+a_2}{2} \times h$$
$$= \frac{90+39}{2} \times 44$$
$$= 2838\ mm^2$$



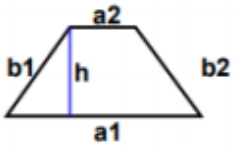
15.

$a1 = 95\ mm;\ a2 = 45\ mm;$

$b1 = 58{,}16\ mm;\ b2 = 48{,}2\ mm;$

$h = 46\ mm$

$$\text{Area} = \frac{a_1+a_2}{2} \times h$$
$$= \frac{95+45}{2} \times 46$$
$$= 3220\ mm^2$$

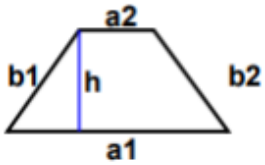


16.

$a1 = 97\ cm;\ a2 = 46\ cm;$

$b1 = 64{,}13\ cm;\ b2 = 48{,}74\ cm;\ h = 48\ cm$

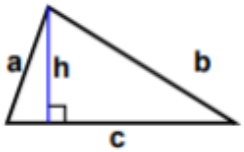
$$\text{Area} = \frac{a_1+a_2}{2} \times h$$
$$= \frac{97+46}{2} \times 48$$
$$= 3432\ cm^2$$



17.

$a = 50{,}99\ mm;\ b = 91{,}41\ mm;$

$c = 95\ mm;\ h = 48\ mm$

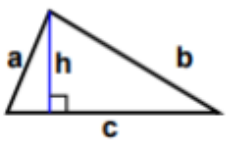


$$\text{Area} = \frac{1}{2}bh$$
$$= \frac{1}{2} \times 95 \times 48$$
$$= 2280\ mm^2$$

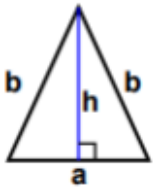
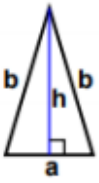
18.

$a = 45{,}6\ cm;\ b = 81{,}85\ cm;$

$c = 88\ cm;\ h = 42\ cm$



$$\text{Area} = \frac{1}{2}bh$$
$$= \frac{1}{2} \times 88 \times 42$$
$$= 1848\ cm^2$$

19.	20.
$a = 59\,cm;\ b = 74\,cm;\ h = 66{,}2\,cm$  Area $= \frac{1}{2}bh$ $= \frac{1}{2} \times 59 \times 66{,}2$ $= 1952{,}9\,cm^2$	a = 41 cm; b = 80 cm; h = 74,7 cm  Area $= \frac{1}{2}bh$ $= \frac{1}{2} \times 41 \times 74{,}7$ $= 1531{,}35\,cm^2$

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