St. Mary's Catholic High School, Muhaisnah

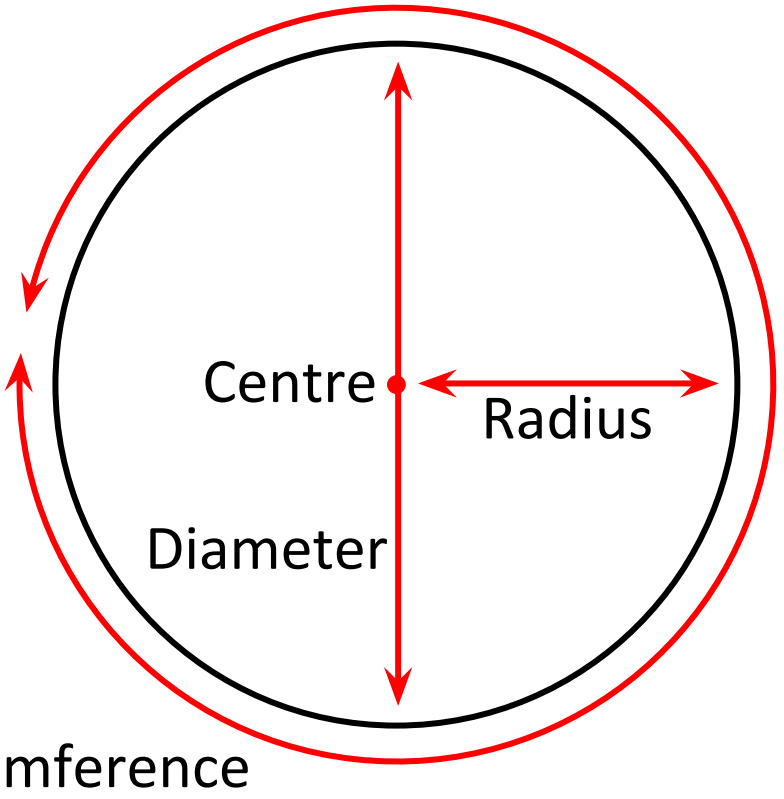
Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.

A circle is a shape where all points are equidistant from a centre.

The **area** of a circle is the space within the circle.

The **perimeter** of a circle is called the circumference.



St. Mary's Catholic High School, Muhaisnah

Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.

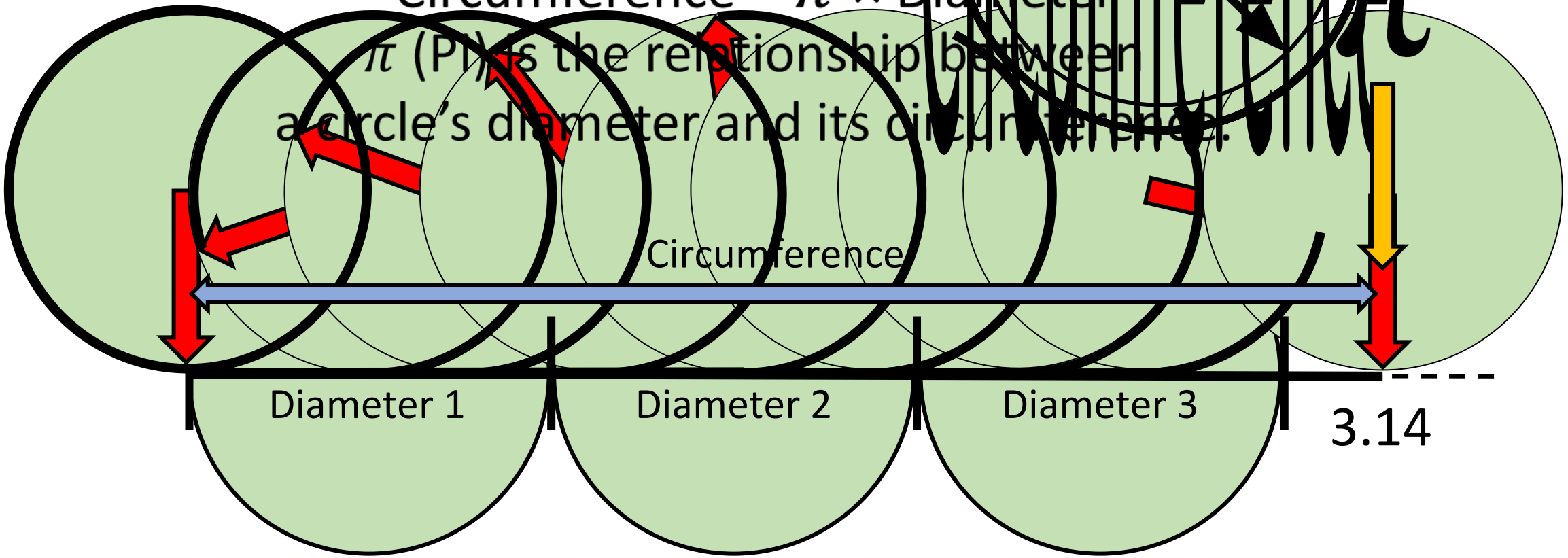
What is the relationship between a circle's circumference and its diameter?

Circumference = 3..... × Diameter

Circumference = 3.14159265358979... × Diameter

Circumference = π × Diameter

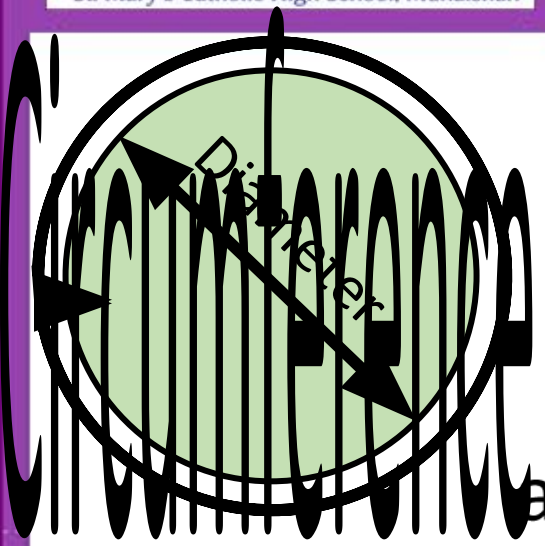
π (PI) is the relationship between a circle's diameter and its circumference.



St. Mary's Catholic High School, Muhaisnah

Area and Circumference of a circle

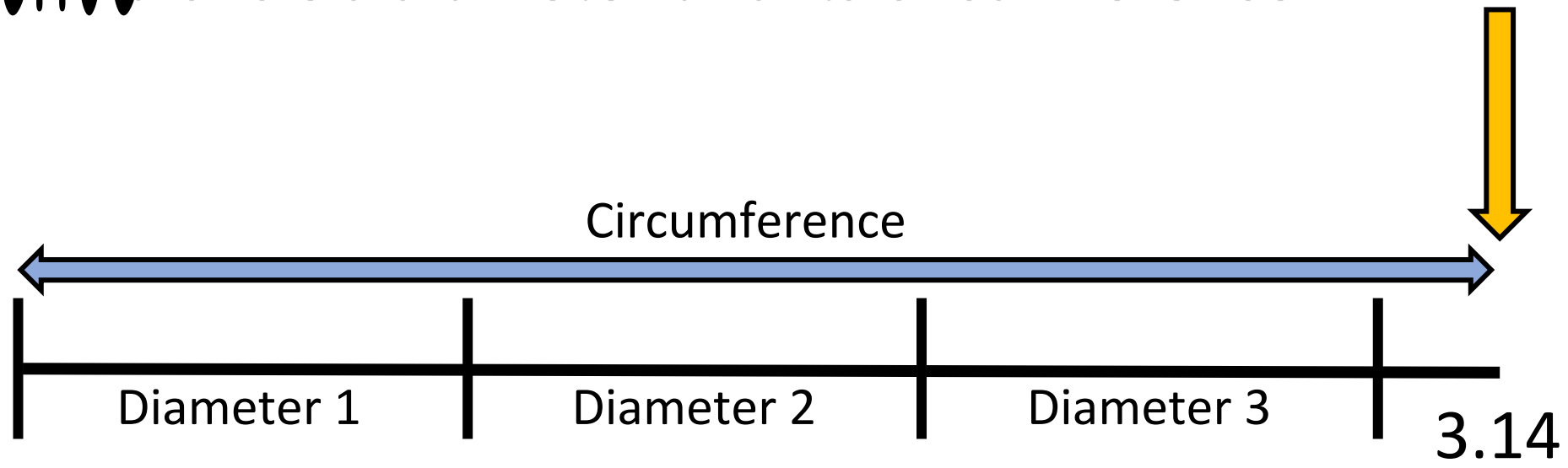
LO: To accurately calculate the area and circumference of a circle.



Circumference = π × Diameter

π (Pi) is the relationship between a circle's diameter and its circumference.

π



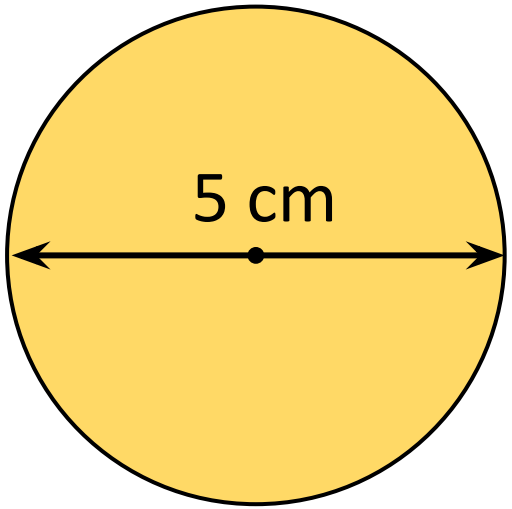
St. Mary's Catholic High School, Muhaisnah

Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.

Find the circumference of this circle.
(to 1 dp)

$$C = \pi d$$



$$C = \pi \times 5$$

$$= 15.7 \text{ cm}$$

MY TURN

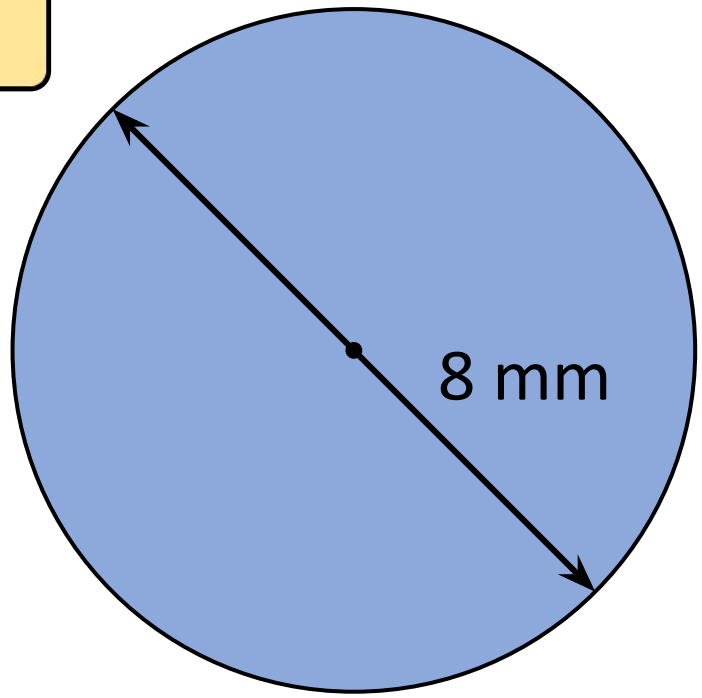
St. Mary's Catholic High School, Muhaisnah

Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.

Find the circumference of this circle.
(to 1 dp)

$C = \pi d$



$C = \pi \times 8$

$= 25.1 \text{ mm}$

YOUR TURN

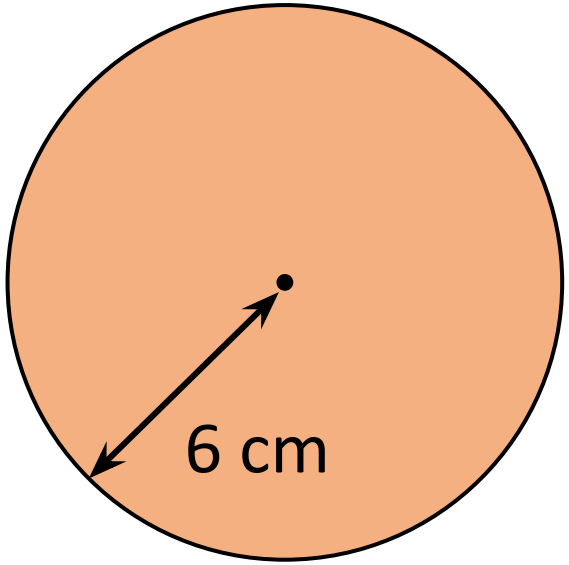
St. Mary's Catholic High School, Muhaisnah

Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.

Find the circumference of this circle. (to 1 dp)

$$C = \pi d$$



$$C = \pi \times (6 \times 2)$$

$$= 37.7 \text{ cm}$$

MY TURN

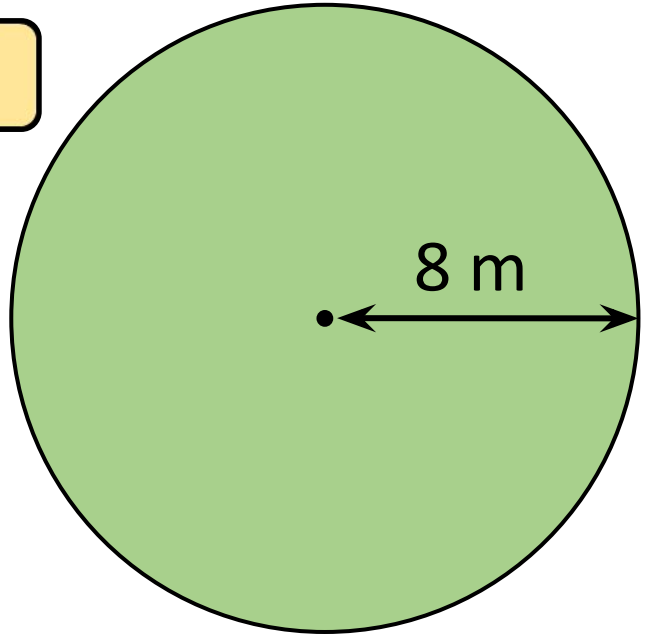
St. Mary's Catholic High School, Muhaisnah

Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.

Find the circumference of this circle.
(to 1 dp)

$C = \pi d$

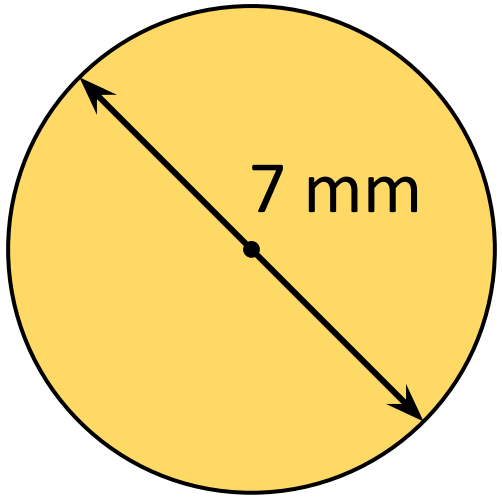


$C = \pi \times (8 \times 2)$

$= 50.3 \quad \text{m}$

YOUR TURN

Find the circumference of this circle.
(to 1 dp)



$C = \pi \times 7$

$= 22.0 \ \text{mm}$

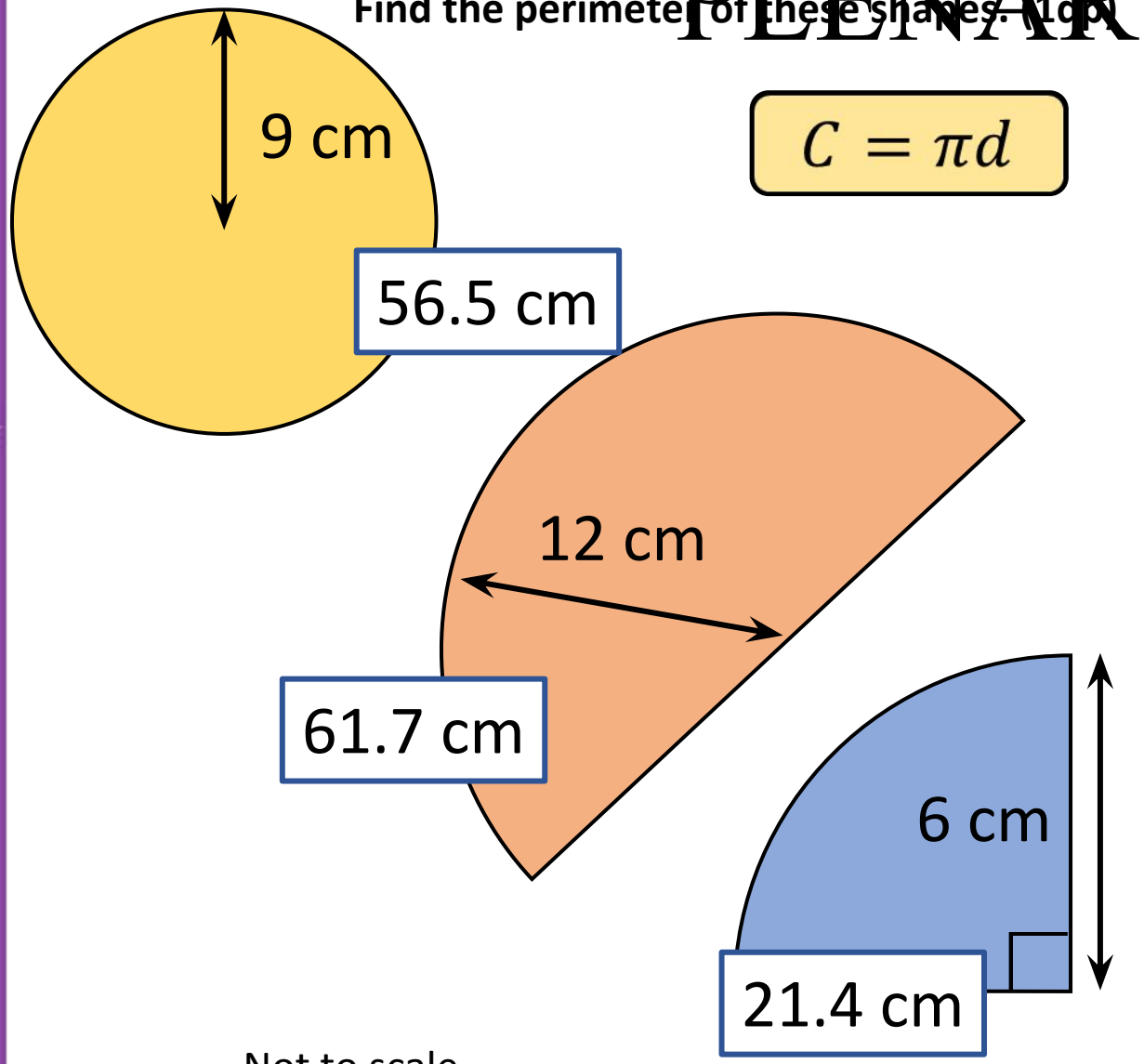
St. Mary's Catholic High School, Muhaisnah

MINI PLENARY

LO: To accurately calculate the area and circumference of a circle.

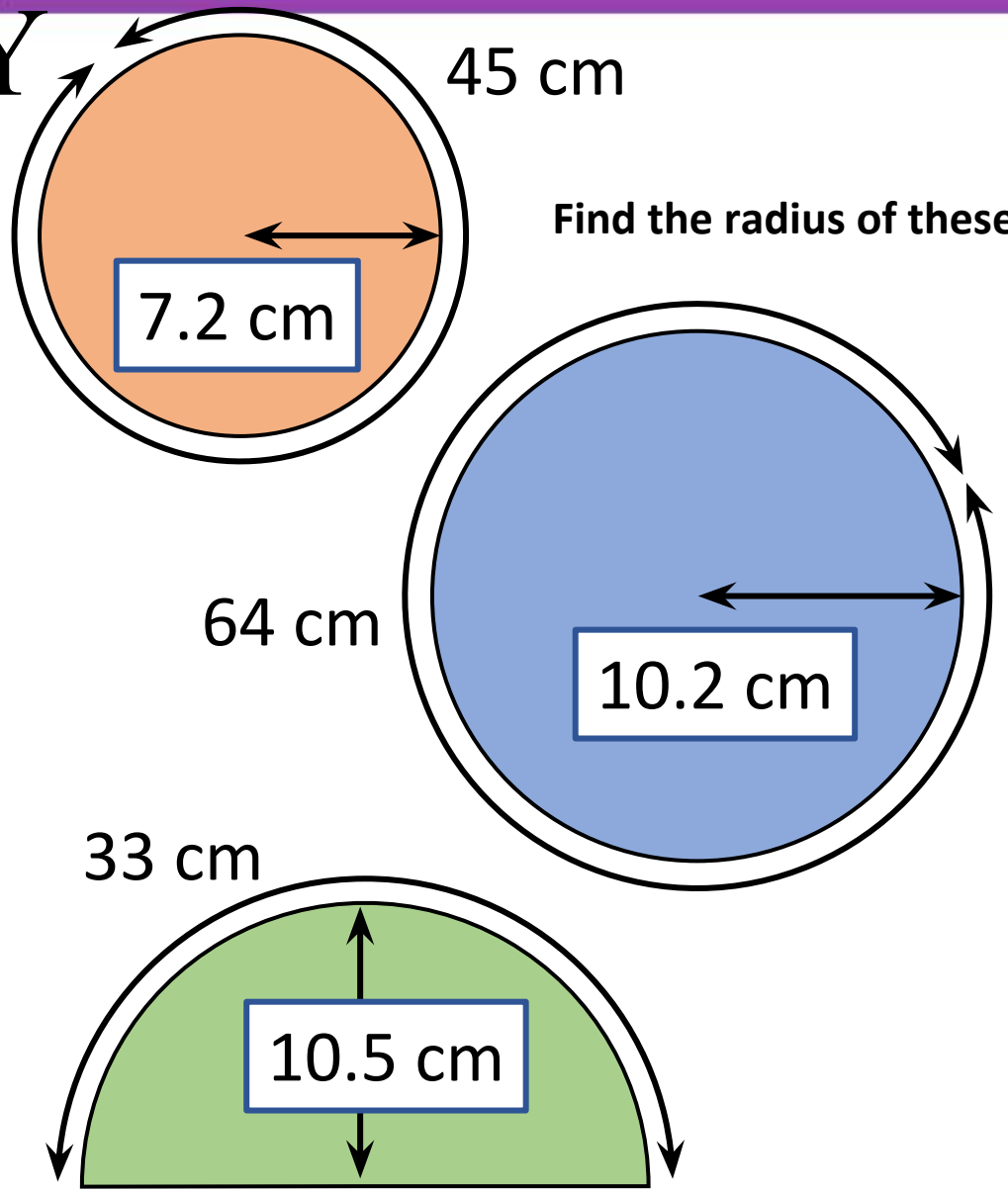
Find the perimeter of these shapes. (1dp)

$$C = \pi d$$

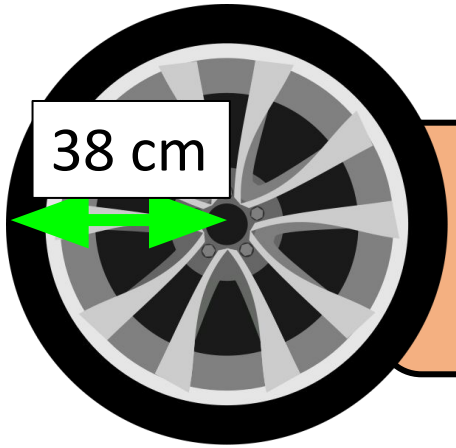


Not to scale.

Find the radius of these shapes.

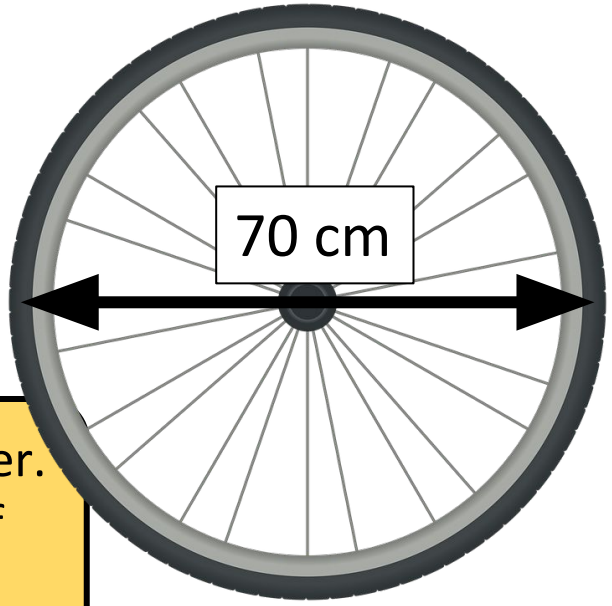


GROUP TASK



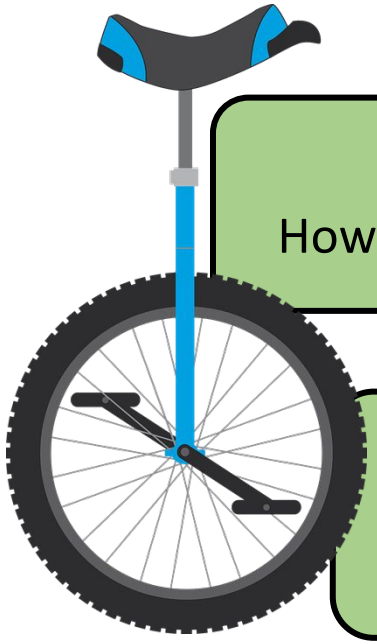
A car wheel has a radius of 38 cm.
If it rolls 120 times,
how far does it travel?

28,651.3 cm = 286.5 m



A bicycle wheel has a 70 cm diameter.
How many times would it rotate if
the bicycle travelled 100 meters?

45.47 times = 45 times



A unicycle's wheel has a radius of 28 cm.
How many complete revolutions would it take a rider to travel 1.3 km?

738.9 times = 739 complete revolutions

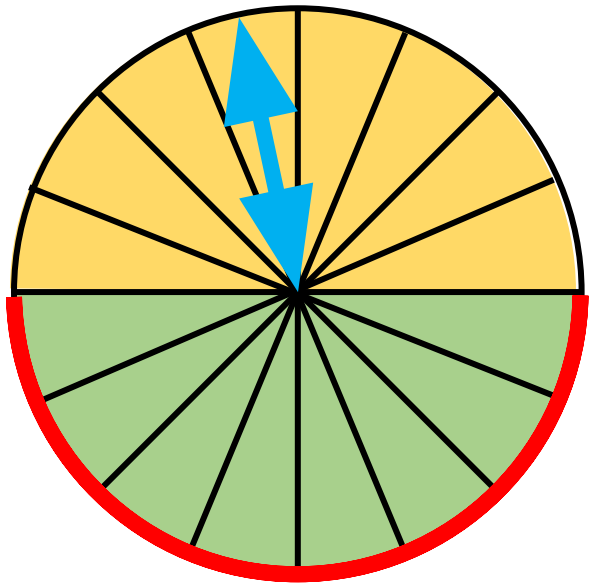
The unicycle's pedal is 15 cm long.
How far does the rider need to move
their feet to travel 1.3 km?

$739 \times 30 \times \pi \times 2$
$= 1.393$ km

St. Mary's Catholic High School, Muhaisnah

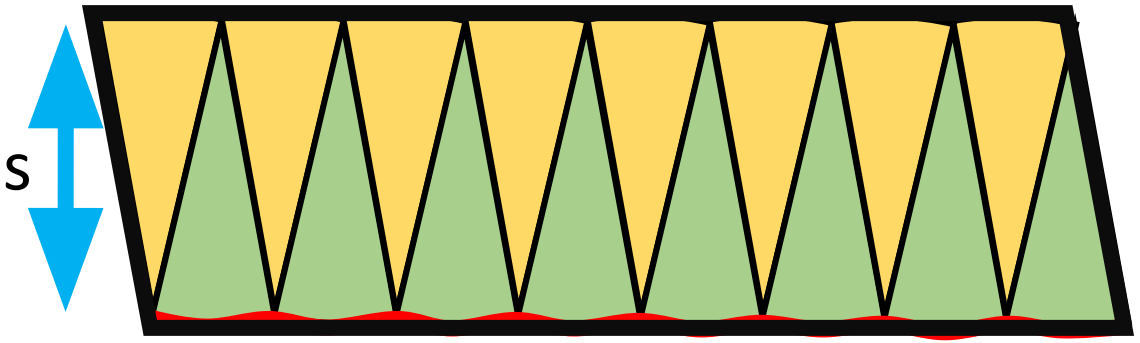
Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.



Height = radius

What is the height and base of this parallelogram?



Base = half the circumference

= radius × π

Area = radius × radius × π

= $r^2 \times \pi$

$c = d \times \pi$

$c = 2 \times r \times \pi$

$$Area\ of\ a\ circle = \pi r^2$$

DEMO

St. Mary's Catholic High School, Muhaisnah

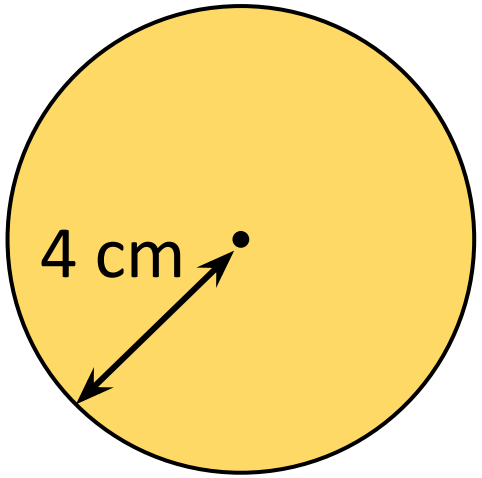
Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.

$A = \pi r^2$

MY TURN

Find the area of this circle. (to 1 dp)

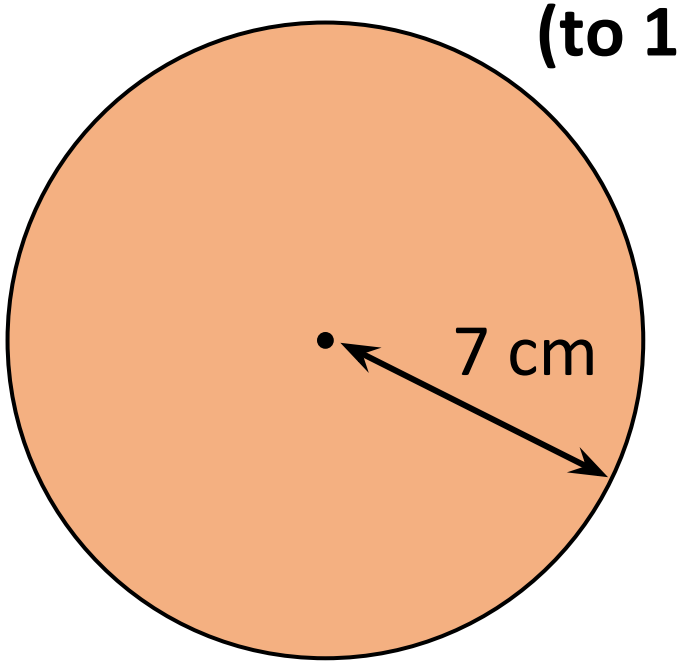


$A = \pi \times (4)^2$

$= 50.3 \text{ cm}^2$

YOUR TURN

Find the area of this circle. (to 1 dp)



$A = \pi \times (7)^2$

$= 153.9 \text{ cm}^2$

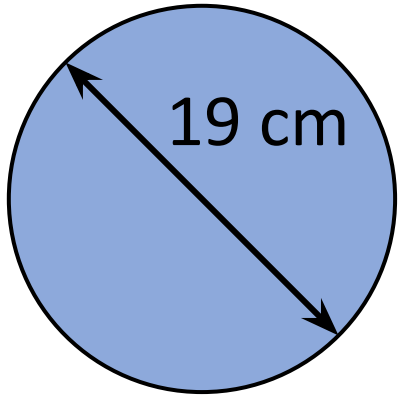
St. Mary's Catholic High School, Muhaisnah

Area and Circumference of a circle

LO: To accurately calculate the area and circumference of a circle.

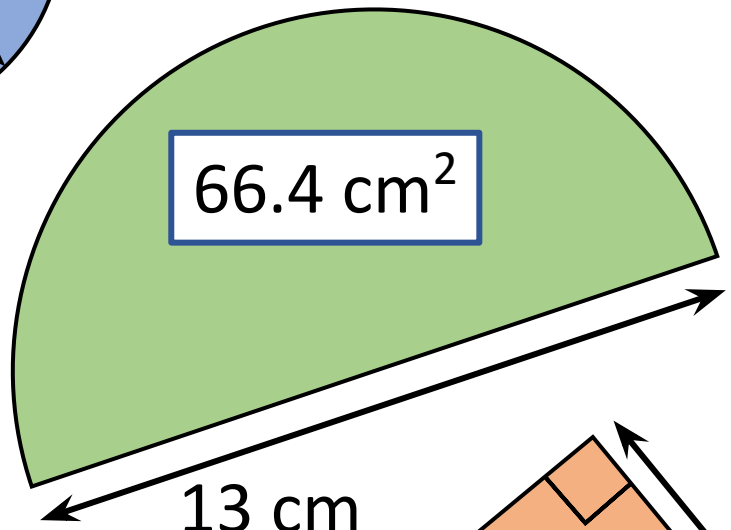
GROUP TASK

Find the area of these shapes. (1dp)

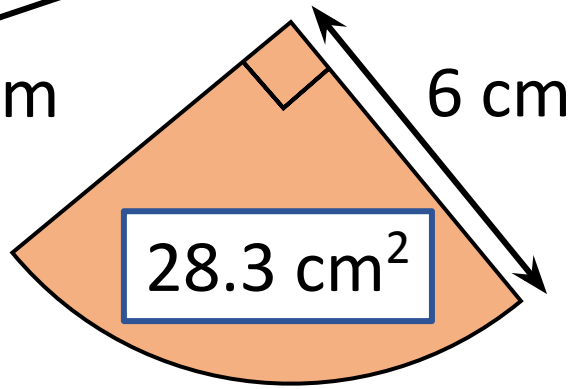


283.5 cm^2

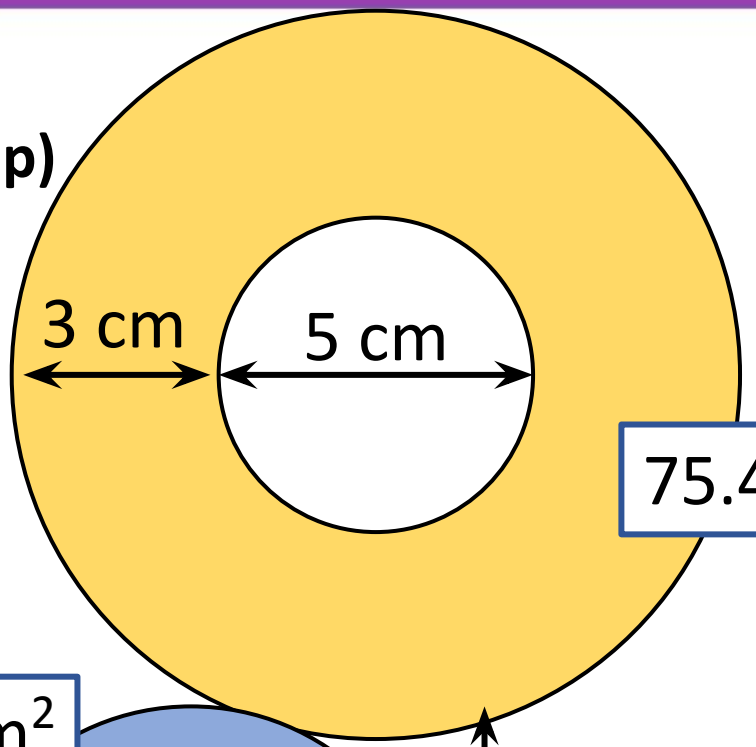
$A = \pi r^2$



66.4 cm^2

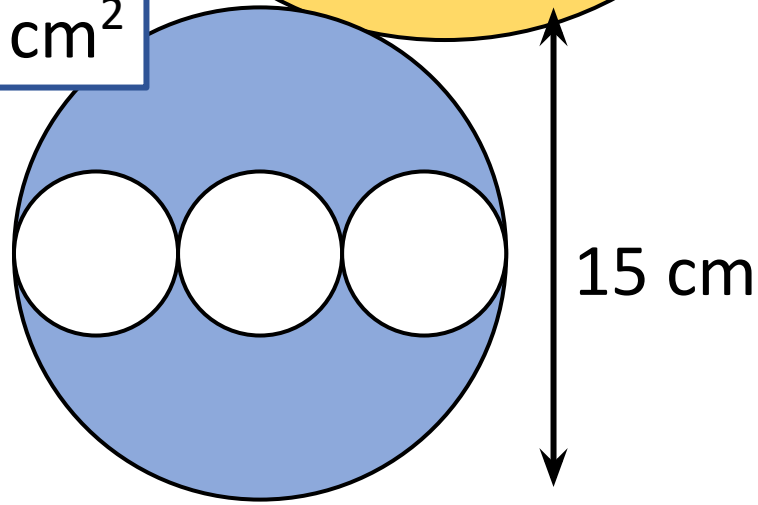


28.3 cm^2



75.4 cm^2

117.8 cm^2



Not to scale.

St. Mary's Catholic High School, Muhaisnah

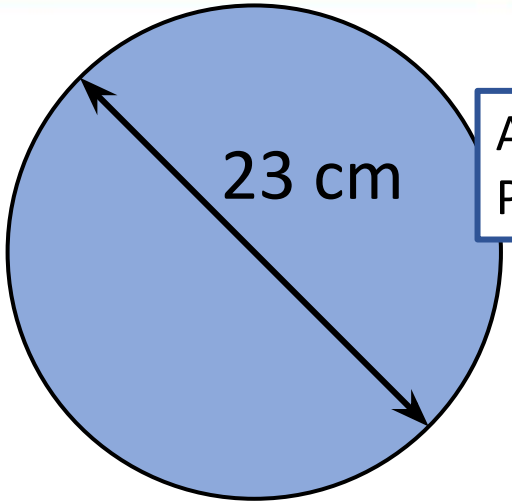
CORE TASK

LO: To accurately calculate the area and circumference of a circle.

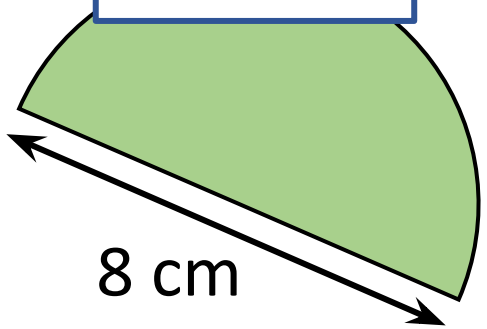
Find the area & perimeter of these shapes. (1dp)

$A = \pi r^2$

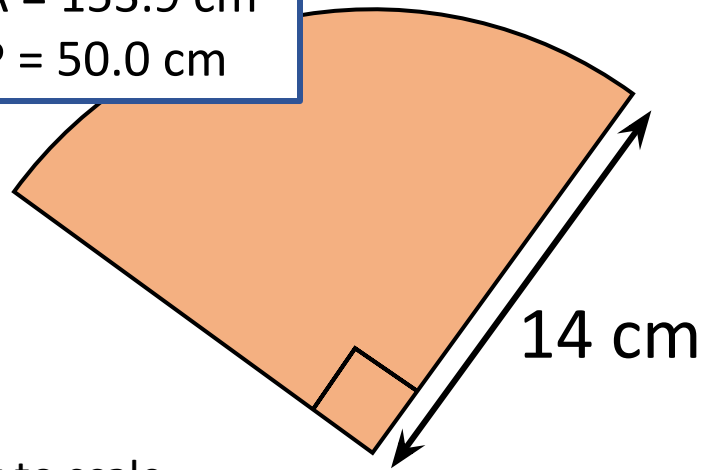
$C = \pi d$



A = 415.5 cm^2
P = 72.3 cm

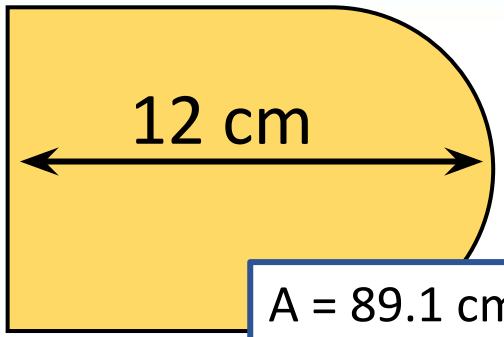


A = 25.1 cm^2
P = 20.6 cm

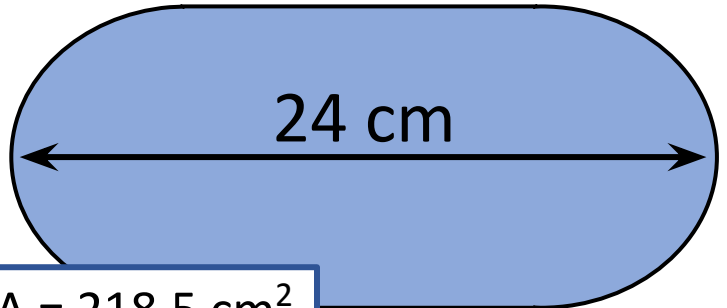


A = 153.9 cm^2
P = 50.0 cm

Not to scale.

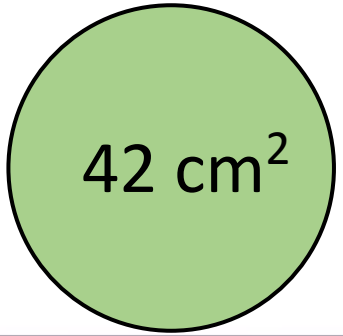


A = 89.1 cm^2
P = 36.6 cm



A = 218.5 cm^2
P = 59.4 cm

Find the circumference of this circle.



23.0 cm

St. Mary's Catholic High School, Muhaisnah

Area and Circumference of a circle

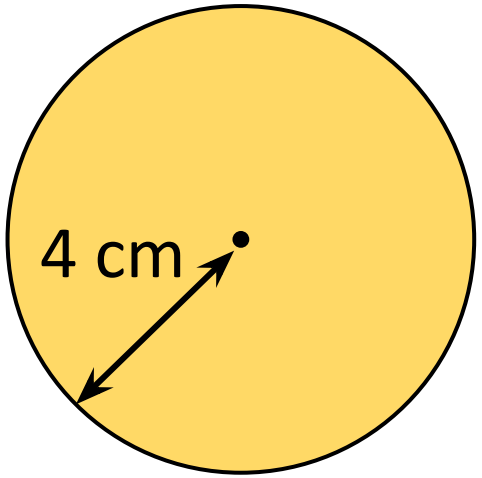
LO: To accurately calculate the area and circumference of a circle.

DEMO

PLENARY

$A = \pi r^2$

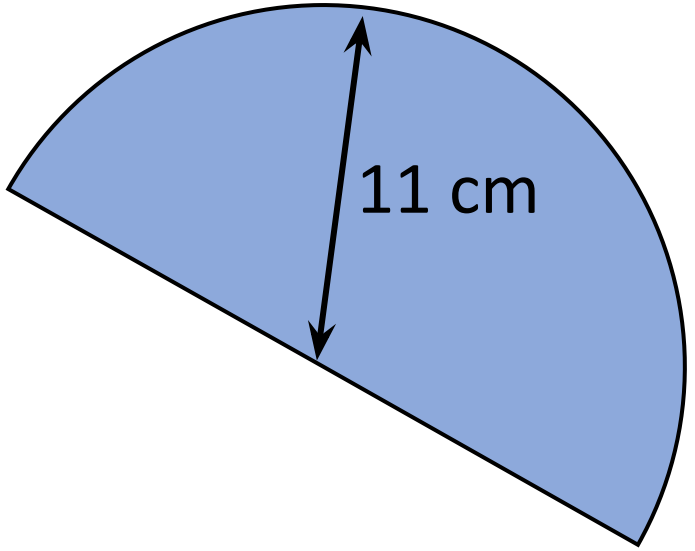
Find the area of this circle. (to 1 dp)



$A = \pi \times (4)^2$

$= 50.3 \quad \text{cm}^2$

Find the area of this shape. (to 1 dp)



$A = \pi \times 11^2 \div 2$

$= 190.1 \quad \text{cm}^2$