Suppose f is a periodic function with a period of 10

Given f(12)=23 and f(51) = 2

This represents the point (12,23)

This represents the point (51,2)

The period of 10 means that if you start at any x-value and move a multiple of 10 in any direction you will get the same y-value.

Find f(32) = 23

Since 32 is 20 units away from 12 (2 periods) it must have the same y-value.

Find f(41) = 2

Since 41 is 10 units away from 51 (1 period) it must have the same y-value.

Suppose f is a periodic function with a period of 18

every 18 units y-values repeat.

Given f(5)= -9 and f(16) = 27

Find f(-49) = -9

-49 is 54 units away from 5 (3 periods). Therefore, it must have the same y-value.

Find f(106) = 27

106 is 90 units away from 16 (5 periods). Therefore, it must have the same y-value.

What is the measure of an angle?

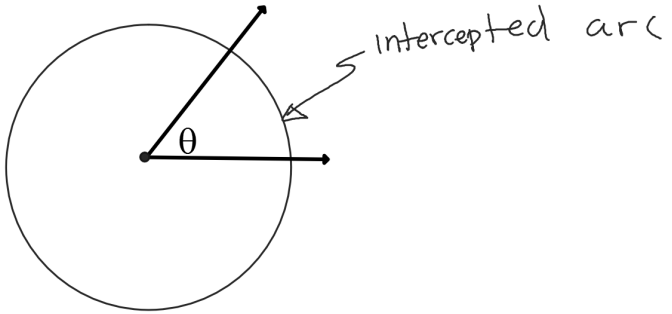
The size of an angle
or
The amount of turn to move from one side the other side.

Units used to measure angles:

- Degrees
- Radians

## Central Angle:

An angle whose vertex is at the center of a circle.

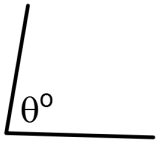


θ

Greek letter Theta

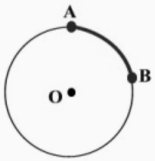
Variable often used to represent an angle

Sinθ




What is an Arc ?

What is Arc Length ?

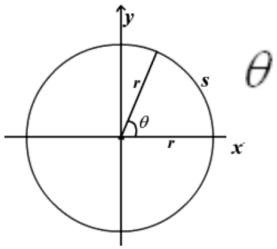



An **arc** of a circle is a "portion" of the circumference of the circle.

The **length of an arc** is simply the length of its "portion" of the circumference. Actually, the circumference itself can be considered an arc length.

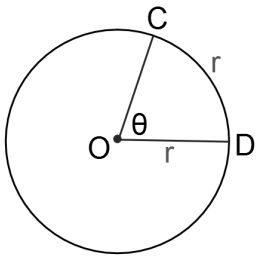
Radian Measure of an angle:

Ratio of the length of the arc intercepted by a central angle to the radius of the circle.




$$\theta = \frac{s}{r} = \frac{\text{Length of intercepted arc}}{\text{Length of radius}}$$

One radian is the measure of an angle that intercepts an arc whose length is equal to the radius of the circle.



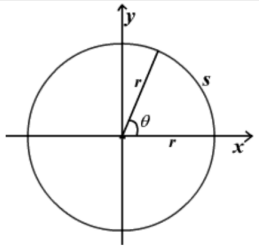

$$\theta = \frac{S}{r} = \frac{r}{r} = 1$$

$m\angle COD$ = 1 radian

Using this formula: $\theta = \frac{s}{r}$

You can write this as: $S = \theta r$

Length of an arc equals the measure of the angle, in radians, times the radius.




If the arc length equals the entire circle then S is the entire circumference $S=2\pi r$

$S = \theta r$ becomes $2\pi r = \theta r$

If you divide both sides by r you get:

$2\pi = \theta$

This means a full circle is equal to $2\pi$ radians.

So the relationship between degrees and radians is:

$2\pi = 360^\circ$

This can be simplified into: $\pi = 180^\circ$