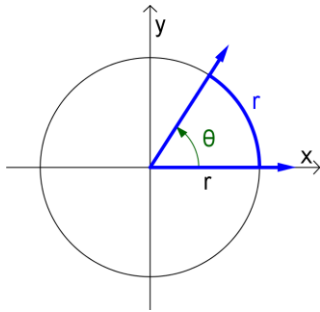
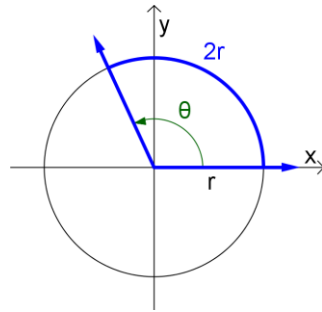


## Radian Measure

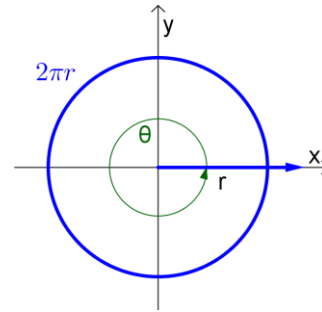
Besides degrees, another unit to measure angles is **radians**. Here are some examples:



$$\theta = \underline{\hspace{2cm}}$$



$$\theta = \underline{\hspace{2cm}}$$



$$\theta = \underline{\hspace{2cm}}$$

If  $\theta$  is a central angle of a circle of radius  $r$ , and  $\theta$  intercepts an arc of length  $s$ , then  $\theta = \frac{s}{r}$  will compute the **radian measure of  $\theta$** .

Note that  $360^\circ = 2\pi$  radians. Also,  $180^\circ = \pi$  radians. This is the typical conversion ratio that is used.

### Ex 1.

Convert each degree measure to radians.

$$45^\circ$$

$$-270^\circ$$

### Ex 2.

Convert each radian measure to degrees.

$$\frac{9\pi}{4}$$



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**Practice**

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1. Convert each degree measure to radians.

a)  $-135^\circ$

b)  $325.7^\circ$

2. Convert each radian measure to degrees.

a)  $\frac{11\pi}{12}$

b)  $-2.92$

3. Find each function value.

a)  $\sin \frac{5\pi}{3}$

b)  $\tan\left(-\frac{3\pi}{4}\right)$

c)  $\csc\frac{7\pi}{4}$

Q: What can you catch, but not throw?