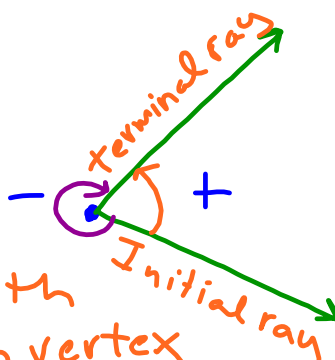


Section 4.2: Degrees & Radians

Angles

rotational distance between 2 rays with a common vertex



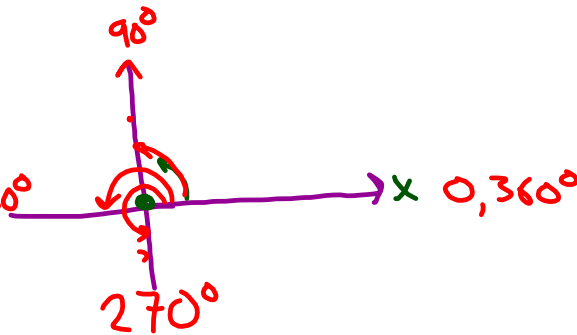
2 angles

\oplus angle CCW

\ominus angle CW

Standard Position

Initial ray on the \oplus x-axis. Vertex is on the origin.



Angles in Degrees:

$$1^\circ = \frac{1}{360} \text{ of a circle}$$

$$1^\circ = 60'$$

$$1' = 60''$$

DMS form: $32^\circ 5' 28''$

Convert to Decimal form

$$32. + \frac{5}{60} + \frac{28}{3600}$$

$$32 + .083 + .008$$

$$32.091^\circ$$

Decimal Form

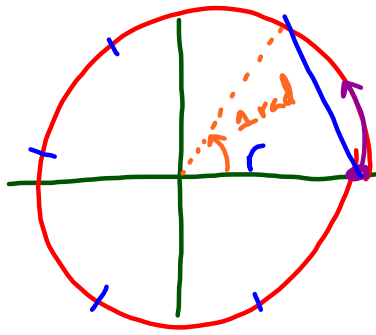
$$56.735^\circ$$

convert to DMS

$$56^\circ 44' 6''$$

$$\text{min: } 0.735 \times 60' = \underline{44.1}$$

$$\text{Sec: } 0.1 \times 60'' = \underline{6}$$



Circumference: = $2\pi r$

$\pi = 3.14$
 $2\pi = 6.28$

2π radians in a circle

$\frac{11\pi}{6} = 11 \cdot 30^\circ = 330^\circ *$

$\frac{5\pi}{4} = 5 \cdot 45^\circ = 225^\circ$

$150^\circ = \frac{5\pi}{6}$

Radians

2π

π

$\pi/2$

$\pi/3$

$\pi/4$

$\pi/6$

Degrees

360°

180°

90°

60°

45°

30°

Conversions:

Degrees \rightarrow Radians, multiply by $\frac{\pi}{180^\circ}$

Radians \rightarrow Degrees, multiply by $\frac{180^\circ}{\pi}$

$120^\circ \rightarrow$ radians $120^\circ \times \frac{\pi}{180^\circ} = \frac{120}{180} \rightarrow \frac{2\pi}{3}$

$315^\circ \rightarrow$ $315^\circ \times \frac{\pi}{180} = \frac{315}{180} \rightarrow \frac{7\pi}{4}$

$\frac{5\pi}{6} \rightarrow$ degrees $\frac{5(180^\circ)}{6} = 5(30^\circ) = 150^\circ$

$\frac{3\pi}{4} = \frac{3\pi}{4} \cdot \frac{180^\circ}{\pi} = \frac{3(180^\circ)}{4} = 3(45^\circ) = 135^\circ$

1-9 odd, 10-25 all ← Thurs.
+ 27-61 odd ← Fri.