Jan. 29, 2014

Sect. 1-1

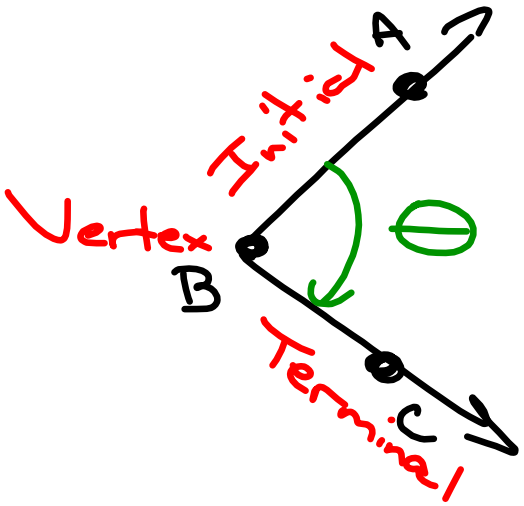
Angles

Angle Measurement

Complementary / Supplementary

DMS $\Leftrightarrow$ DD

Angles



Namings

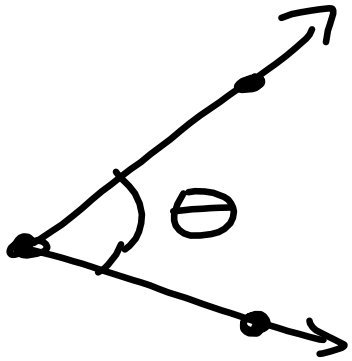
$\angle ABC$

$\angle CBA$

$\angle B$

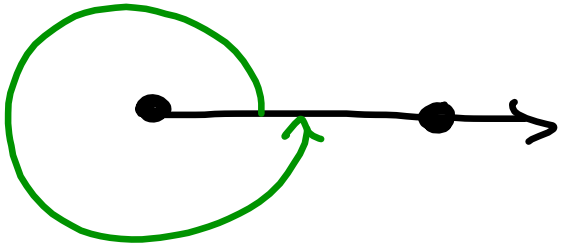
$\angle \theta$

ϕ, β

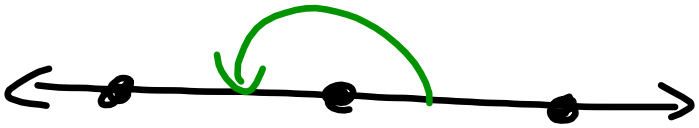


Measure in Degrees *
(with a protractor)

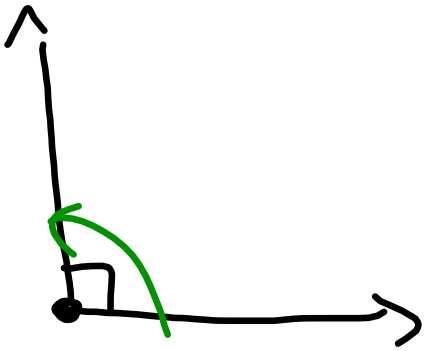
* Not the only unit of measurement.



360°

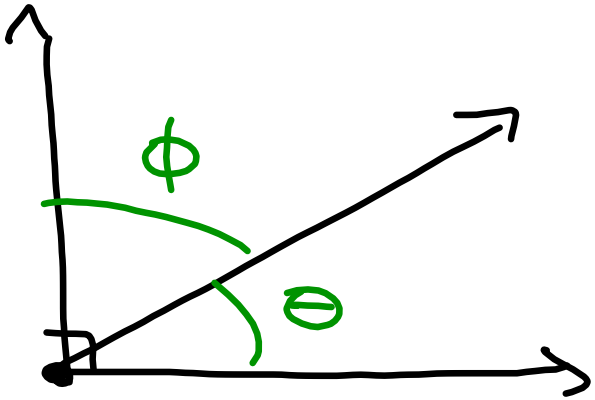


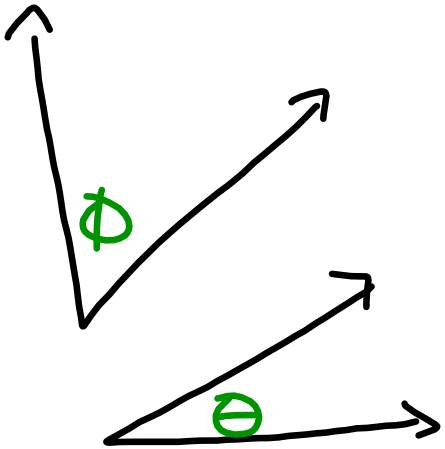
180° Straight



90° Right

Complementary





$$m\angle\theta + m\angle\phi = 90^\circ$$

Supplementary

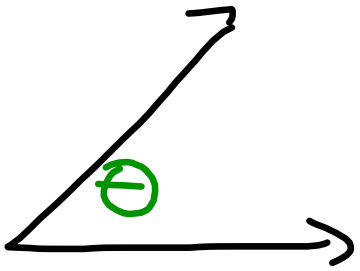
Add to 180°

Degrees Minutes Seconds

DMS

Decimal Degrees

DD



$m\angle\theta = 45.5^\circ$

$m\angle\theta = 45^\circ\ 30'\ 00''$

DMS

Each degree is divided into 60 equal minutes

Each minute is divided into 60 equal seconds

$37^\circ 42' 23''$

DMS $\Rightarrow$ DD

$30^\circ\ 30' \Rightarrow 30.5^\circ$

$30^\circ\ \frac{30}{60} = 30\frac{1}{2} = 30.5^\circ$

$30^\circ\ 23' = 30^\circ\ \frac{23}{60} = 30.38^\circ$

$30^\circ\ 17'\ 25''$

$30^\circ + \frac{17}{60} + \frac{25}{3600}$

30.29028°

$47^\circ\ 48'\ 2''$

47.80056°

DD $\Rightarrow$ DMS

$56.27135°$

$.27135°(60) = 16.281'$

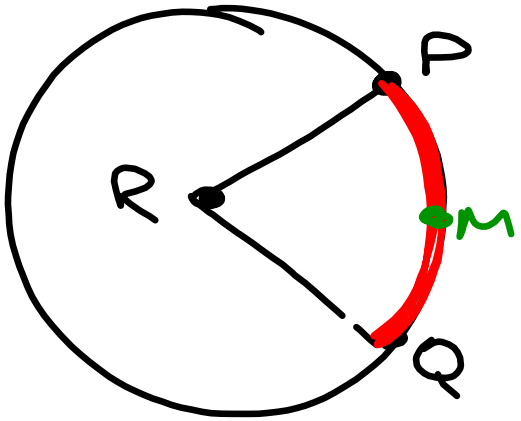
$.281'(60) = 16.86''$

$56° \; 16' \; 16.86''$

95.792135°

$95^\circ\ 47'\ 31.6''$

Arcs



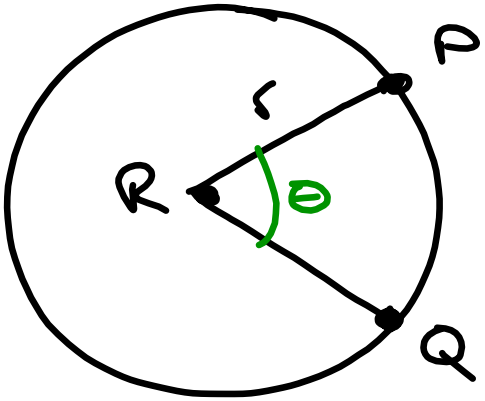
$\odot R$

Arc PQ

$\overset{\frown}{PQ}$

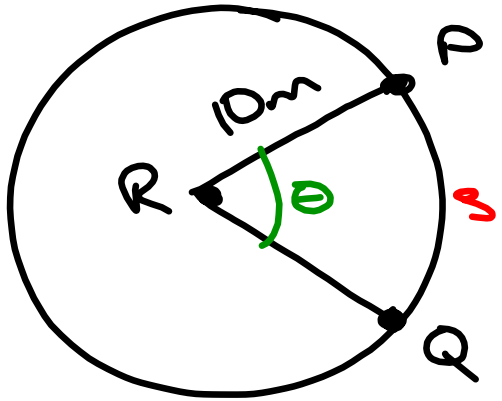
$\overset{\frown}{QP}$

$\overset{\frown}{QMP}$



Angle θ is subtended by $\overset{\frown}{PQ}$

$$\frac{m\angle\theta}{360^\circ} = \frac{m\overset{\frown}{PQ}}{2\pi r}$$



$m\angle\theta = 6.23^\circ$

Find the arclength $m\overset{\frown}{PQ}$.

$$\frac{6.23^\circ}{360^\circ} = \frac{s}{2\pi(10)}$$

$$62.8(6.23) = 360s$$

$$s = 1.086\ m$$