# Alvl P2: circular motion (ch10) Cheat Sheet

by MostAncientDream via cheatography.com/168994/cs/42363/

## circular motion

a force moving in a circular experiences a centripetal force that acts towards the direction **of axis of rotation**

$F = mv^2/r$

velocity is a tangent to the force at a point

- constant speed but always changing directions
- therefore there is a variable acceleration

## angular velocity

w = angular velocity/frequency/speed

in $rads^{-1}$

$v = (2pi/T)r = (2pi\ f)r$

therfore

$v = wr$

## loops

for vertical loops:

you have a circle

A- left furthest side

B- highest point

C- right furthest side

D- bottom

when travelling-

at A/C > support force = $mv^2/r$

B > $mv^2/r$ - mg

D > $mv^2/r$ + mg

banked planes/banded tracks:

$mv^2/r = mgtan0$

to try and visualise-

-plane coming towards you

-angled towards the left the the right wing face towards the sky

-there is mg downwards

-centripetal to the left (axis of rotation)

- there is a force u angled up the the diagonal left at 0 degrees to the normal

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