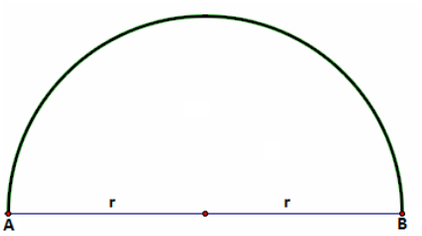
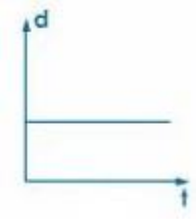
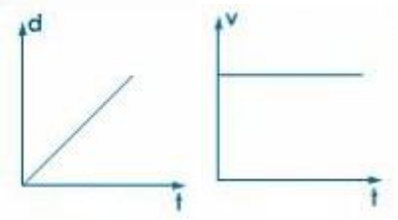
Motion



When a person travels along a semi-circular path

Distance covered = πr

Displacement = 2r

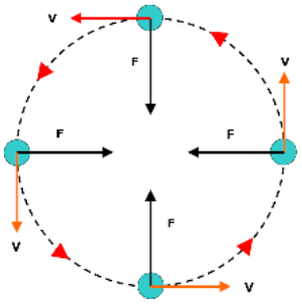
Rest	Uniform velocity	Uniformly accelerated
The position of the object does not change with time 	The object moves with same speed along the same direction 	The velocity of the object increases at a constant rate 

Term	Description	Formula
Distance	Actual distance covered Scalar	Calculated from displacement
Displacement	Separation between two points Vector	vt* $ut + \frac{1}{2}at^2$ $\frac{v^2 - u^2}{2a}$
Velocity **[initial velocity=u]** **[Final velocity=v]**	Rate at which an object changes its velocity Vector Magnitude of velocity is speed	$v = u + at$
Acceleration[a]	Rate of change of velocity Vector	$a = \frac{v - u}{t}$

*formula valid only for constant velocity motion.

1. $v = u + at$
2. $s = ut + \frac{1}{2}at^2$
3. $v^2 - u^2 = 2as$

Uniform circular motion



1. Speed is constant
2. Direction of motion continuously changes
3. Hence, velocity changes at every instant
4. Force and acceleration are acting radially inward