WJEC England Physics A-Level
1.5 Circular Motion
Flashcards

What is the period of rotation?

What is the period of rotation?

The period of rotation is the time taken for an object to complete one full revolution around its axis.

What is frequency?

What is frequency?

The number of times an object completes a full rotation/oscillation per unit time.

What is a radian?

What is a radian?

The angle in the sector of a circle when the arc length of that sector is equal to the radius of the circle.

Radians are usually written in terms of π, where 2π radians = 360 degrees

What kind of force is required to keep an object moving in a circle at constant speed?

What kind of force is required to keep an object moving in a circle at constant speed?

A constant centripetal force, which acts towards the centre of the circular path.

An object moving in a circle at a constant speed is accelerating. True or False?

An object moving in a circle at a constant speed is accelerating. True or False?

True

The direction the object is travelling in is constantly changing, hence the velocity is also changing. Acceleration is defined as the change in velocity over time, therefore the object is accelerating.

What equation(s) can you use to calculate the angular speed (ω)?

What equation(s) can you use to calculate the angular speed (ω)?

$$\omega = \frac{v}{r} \ or \quad \omega = 2\pi f$$

Define angular velocity.

Define angular velocity.

The angle an object moves through per unit time.

What is the equation for angular acceleration in terms of angular velocity?

What is the equation for angular acceleration in terms of angular velocity?

$$a = \omega^2 r$$

What is the equation for angular acceleration in terms of linear velocity?

What is the equation for angular acceleration in terms of linear velocity?

$$a = \frac{v^2}{r}$$

What are the equations used to calculate centripetal force?

What are the equations used to calculate centripetal force?

$$F = \frac{mv^2}{r} \quad \text{and} \quad F = m\omega^2 r$$