

AQA – Dimensional analysis – A2 Further Mathematics Mechanics

1. [June/2020/Paper_3/No.3](#)

The speed, v , of a particle moving in a horizontal circle is given by the formula $v = r\omega$ where:

v = speed

r = radius

ω = angular speed.

Show that the dimensions of angular speed are T^{-1}

[2 marks]

2. June/2019/Paper_3/No.3

A disc, of mass m and radius r , rotates about an axis through its centre, perpendicular to the plane face of the disc.

The angular speed of the disc is ω .

A possible model for the kinetic energy E of the disc is

$$E = km^a r^b \omega^c$$

where a , b and c are constants and k is a dimensionless constant.

Find the values of a , b and c .

[3 marks]
