

F3 Units of Rotary Motion

F3.1 How big is 3 rad, when expressed in degrees?

F3.2 How many radians are there in 90° ?

Complete the questions in the table by converting the units:

	Time period /s	Fre- quency /Hz	Angular Velocity /rad s ⁻¹	Revolutions per Minute (rpm)
F3.3	0.50	(a)	(b)	(c)
F3.4	(a)	(b)	3.0	(c)
F3.5	(a)	(b)	(c)	3800
F3.6	(a)	50	(b)	(c)
F3.7	2700	(a)	(b)	(c)

F3.8 A car travels 10 km. One of its wheels has a radius of 30 cm. Calculate the angle the wheel turns as the car travels this distance (answer in radians).

F3.9 An astronaut's training centrifuge has a radius of 4.0 m. If it goes round once every 2.5 s, calculate the velocity of the end of the centrifuge arm (4.0 m from the pivot).

F3.10 My washing machine has a spin speed of 1200 rpm, and a drum radius of 20 cm. Calculate how fast clothes go, when up against the side of the drum.