Answer on Question #72202, Physics / Other

If a wheel turns at a constant rate completes 100 revolutions in 10 s, its angular speed is

Solution:

Angular speed is the rate at which an object changes its angle (measured) in radians, in a given time period.

In one complete rotation, angular distance traveled is 2π and time is time period (T) then,

$$Angular\ speed = \omega = \frac{2\pi}{T}$$

In our case the period is

$$T = \frac{10\ s}{100\ rev} = 0.1\ s$$

So,

$$\omega = \frac{2\pi}{T} = \frac{2 \times 3.14}{0.1} = 62.8\ rad/s \approx 63\ rad/s$$

Answer: $62.8\ rad/s$