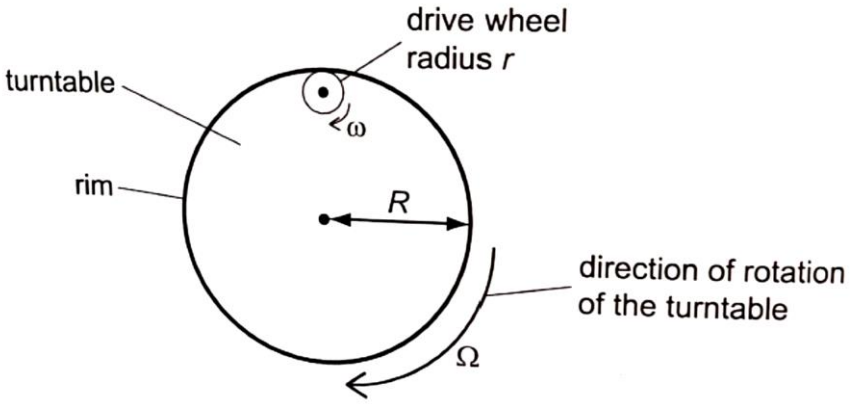
7 A turntable has radius *R*. It is driven by a rubber drive wheel of radius *r* in contact with the inside of the rim of the turntable, as shown below.



plan view

The turntable rotates with angular velocity Ω and the linear speed of a point on its rim is *V*. The drive wheel rotates with angular velocity ω and the linear speed of a point on its rim is *v*.

Which pair of equations show the relationship between the angular velocities and the linear speeds of the turntable and the wheel?

	angular velocities	linear speeds
A	$\Omega = \omega$	$V = v$
B	$\Omega = \omega$	$V = (\frac{r}{R})\, v$
C	$\Omega = (\frac{r}{R})\, \omega$	$V = v$
D	$\Omega = (\frac{R}{r})\, \omega$	$V = (\frac{r}{R})\, v$