

9. We must convert the angular velocity expressed in rev / s to rad / s before calculating the linear velocity.

$$\omega = (3.0 \text{ rev / s}) (2 \pi \text{ rad / rev})$$

$$\omega = 6 \pi \text{ rad / s} = 18.85 \text{ rad / s}$$

Now we can use the relationship between linear velocity and angular velocity

$$v = r \omega$$

$$v = (1.5 \text{ m}) (18.85 \text{ rad / s})$$

$$v = 28.28 \text{ m / s}$$