

A race car is moving at a constant speed of 5.9m/s in a clockwise direction on a circular track of radius 128m. What is in m/s^2 its tangential velocity at that time?

The radius of a track is $R = 128[m]$ therefore its length is

$$L = 2\pi R = 2\pi \cdot 128[m] = 256\pi \approx 804.25[m].$$

As the linear speed of a car is $V = 5.9[m/s]$ it takes

$$T = L/V$$

to make a full circle. Therefore, the angular velocity of a car is

$$\omega = 1/T = V/L.$$

So, tangential velocity of a car is

$$V_{tan} = R \cdot \omega = R \cdot V/L = 128[m] \cdot 5.9[m/s] / (256\pi[m]) \approx 0.939[m/s].$$

P.S. The dimension of tangential velocity is $[m/s]$, not $[m/s^2]$.