Question 35694

We are given radius $R=318\,m$ and $t=1.8\,min$. Since cyclist completes half round of the track in t minutes, the time needed to complete the whole track is $T=2\,t=3.6\,min=216\,sec$ (this is the period of motion).

Angular velocity is $\omega=\dfrac{2\pi}{T}$, and velocity is $a=\omega^2 R$. Thus, acceleration is $a=\dfrac{4\pi^2 R}{T^2}=0.27\,\dfrac{m}{s^2}$

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