**Uniform Circular Motion & Centripetal Force Calculations**

   

1. The period of revolution of a large record is 1.82 s. What is the frequency of the revolutions? ***0.55 Hz***
2. A runner runs around a track with a radius of 50 m in a time of 48 s. What is his linear, or tangential, velocity? ***6.5 m/s***
3. A 6 kg object travels in a horizontal, circular path with a radius of 2.2 m. If it moves at a constant speed of 3.2 m/s, what is the centripetal acceleration experienced by the object? ***4.65 m/s2***
4. From question 3, if it is friction causing the object to travel in the circular path, what is the minimum coefficient of friction necessary to remain in the circular path? ***0.475***
5. A 60 kg man sits on a scale, and travels on a roller coaster that goes through a vertical loop with radius of 30.5 m. What will the scale read if the roller coaster is at the top of the loop moving 21 m/s? ***280 N***
6. If, from question 5, the roller coaster is at the bottom of the loop moving 15 m/s, what will the scale read? ***1455 N***
7. A 40 kg woman decides to ride *The Gravitron* at her local amusement park. Determine the minimum coefficient of friction between her and the wall for her to not fall if the radius of the ride is 9.5 m, and the speed of the ride is 15 m/s. ***0.41***