PC3261
Classical Mechanics II

Worksheet 1

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Exercise 1.1. Find the particles's velocity and acceleration vectors. What are the magnitude and direction of the particle's acceleration?

Solution: Starting with the position vector of the particle undergoing uniform circular motion,

$$\mathbf{r}(t) = R\cos\omega t\hat{\mathbf{e}}_x + R\sin\omega t\hat{\mathbf{e}}_y. \tag{1}$$