Physics
Quiz # 4

Date Given: April 28, 2022
Date Due: May 12, 2022

Q1. (4 points) Solve the following problems.

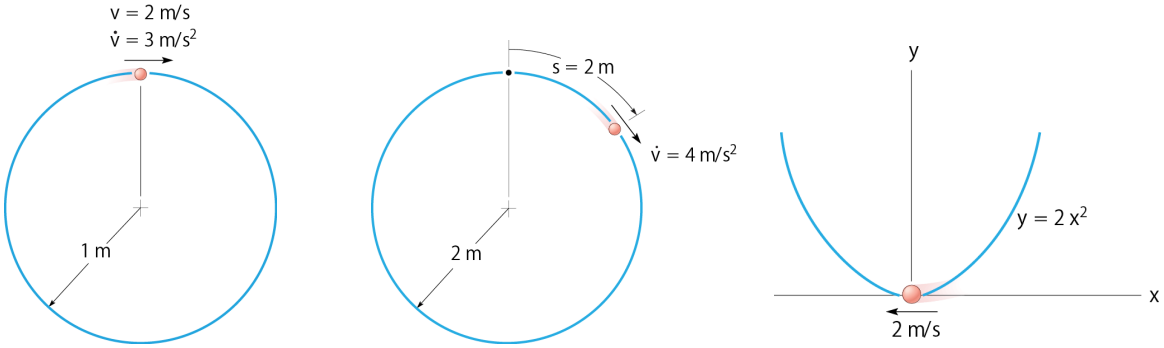

Figure 1: (a)-left, (b)-middle, (c)-right

(a) (1 point) Determine the magnitude of acceleration at the instant shown in Figure 1(a).

(b) (2 point) Determine the speed and the normal component of acceleration at $s = 2$m (see Figure 1(b)). At $s = 0$, $v = 0$.

(c) (1 points) Determine the acceleration at the instant shown in Figure 1(c). The particle has a constant speed of 2m/s.

Q2. (2 points) Determine the normal and tangential component of acceleration at $s = 0$ if $v = (4s+1)$m/s (see Figure 2).

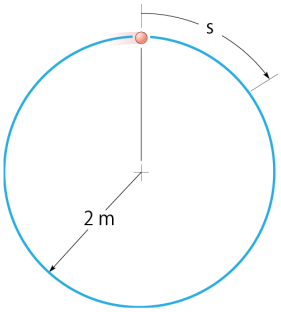

Figure 2: Illustration to Question 2.

Q3. (2 points) Determine the acceleration at $s = 2\text{m}$ if $\dot{v} = (2s)\text{m/s}^2$ where s is in meters (see Figure 3). At $s = 0$, $v = 1\text{m/s}$.

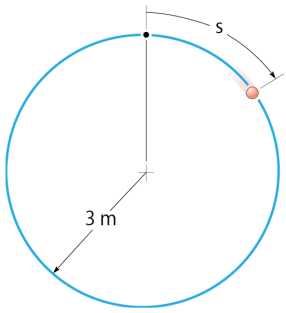

Figure 3: Illustration to Question 3.

Q4. (2 points) Determine the acceleration when $t = 1\text{s}$ if $v = (4t^2 + 2)\text{m/s}$ where t is in seconds (see Figure 4).

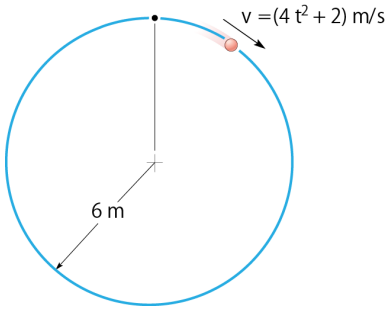

Figure 4: Illustration to Question 4.