Recitation Exam 1

Problem 1: (4 points)
The speed of a particle moving in one dimension is plotted as a function of time below. Calculate the position and acceleration of the particle at (a) \( t = 10 \) s (b) \( t = 25 \) s and (c) \( t = 40 \) s.

Problem 2: (6 points)
The acceleration of a particle moving in one dimension is given as a function of time as

\[
a(t) = At^2 - B
\]

where \( A \) and \( B \) are positive constants. At \( t = 0 \) the position and velocity of the particle are

\[
x(t = 0) = x_0
\]
\[
v(t = 0) = v_0.
\]

Calculate the velocity and position of the particle as a function of time.