Section 3.4 Problems

Text: 157, 163, 173, 174-177 (present as one problem), 181

Additional problems:

1. Find the position $\mathbf{r}(t)$ and velocity $\mathbf{v}(t)$ vectors of a particle with acceleration

   $$\mathbf{a}(t) = 2\mathbf{i} + 4t\mathbf{j}$$

   and initial position and velocity

   $$\mathbf{v}(0) = 3\mathbf{i} - \mathbf{j}, \qquad \mathbf{r}(0) = \mathbf{j} + \mathbf{k}.$$

2. The position of a particle is given by

   $$\mathbf{r}(t) = \left\langle t^2, 5t, t^2 - 16t \right\rangle.$$

   Determine the time t where the speed of the particle is minimized.