PHY151H1F – Practice Problem Set 1
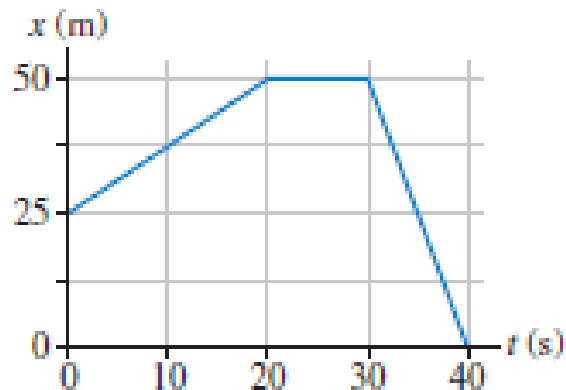
1. For the motion plotted below, what is
   a. The velocity at t = 10 s?
   b. The velocity at t = 25 s?
   c. The velocity at t = 35 s?
   d. The average velocity over the interval t = 0 to 40 s?

2. Sketch the following vector, and label an angle that specifies the vector's direction. Also find its magnitude.

$$\vec{v} = (-10\hat{\imath} - 100\hat{\jmath})\,\text{m/s}$$

3. • Mary needs to row her boat across a 100-m-wide river that is flowing to the east at a speed of $1.0\,\text{m/s}$. Mary can row with a speed of $2.0\,\text{m/s}$.

   a. If Mary points her boat due north, how far from her intended landing spot will she be when she reaches the opposite shore?

   b. What is her speed with respect to the shore?