3.7. Visualize:

We will follow the rules given in Tactics Box 3.1.

**Solve:**

(a) \( v_x = -(5 \text{ cm/s})\sin 90^\circ = -5 \text{ cm/s} \quad v_y = (5 \text{ cm/s})\cos 90^\circ = 0 \text{ cm/s} \)

(b) \( a_x = -(10 \text{ m/s}^2)\sin 40^\circ = -6.4 \text{ m/s}^2 \quad a_y = -(10 \text{ m/s}^2)\cos 40^\circ = -7.7 \text{ m/s}^2 \)

(c) \( F_x = (50 \text{ N})\sin 36.9^\circ = 30 \text{ N} \quad F_y = (50 \text{ N})\cos 36.9^\circ = 40 \text{ N} \)

**Assess:** The components have the same units as the vectors. Note the minus signs we have manually inserted according to Tactics Box 3.1.