Name

Date

Week: _____ **Problem:** _____

Given:

The total force exerted on the 80,000-lb launch vehicle by the thrust of its engine, its weight, and aerodynamic forces during the interval of time from $t = 2$ s to $t = 4$ s is given as a function of time by $\Sigma\mathbf{F} = (2000 - 400t^2)\mathbf{i} + (5200 + 440t)\mathbf{j} + (800 + 60t^2)\mathbf{k}$ (lb). At $t = 2$ s, its velocity is $\mathbf{v} = 12\mathbf{i} + 220\mathbf{j} - 30\mathbf{k}$ (ft/s). What is its velocity at $t = 4$ s?

Required:

Solution: