Wednesday Reading Assessment: Unit 2, Kinematics

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1 Memory Bank

- $a = g$ (m/s^2)
- $v_f(t) = gt + v_{i,y}$ (m/s)
- $y(t) = \frac{1}{2}gt^2 + v_{i,y}t + y_i$ (m)
- $v_f^2 = v_i^2 + 2g\Delta y$ (m/s)^2.

2 Chapter 2 - Kinematics

1. Solve the second equation above in the memory bank for t, and just take the magnitude of the vectors. $t =$?

2. Insert t from the prior question into the third equation from the memory bank, and solve for v_f^2. What relationship do you find?

3. **Example from KNS**: Imagine a sprinter preparing for a race. He is starting from rest, and the race begins at $t = 0$. He accelerates up to 10 m/s at a rate of 3 m/s^2. How far has he traveled? (Choose the correct equation from the memory bank before beginning).

4. If he travels at 10 m/s for another 20 seconds, what additional distance does he cover?