Name _____ Date _____

38	Kinematics on a Field at Monroe Township High School

Purpose: To calculate the acceleration and velocities of a person as they move across a field.

Materials: iPads equipped with stopwatches, a marked field

Procedure: A person starts from rest. In phase 1, they accelerate until they reach a constant speed. In phase 2, they move at that constant speed. In phase 3, they slow down and come to a rest.

The group decides the distance for each phase. One person moves across the field. Other members of the group time each of the phases. To clarify, a person will time phase 1, another person will time phase 2 and a third person will time phase 3.

Data:

Phase 1	Phase 2	Phase 3
distance _____	distance _____	distance _____
time _____	time _____	time _____

Diagram: Draw a diagram of the field where you collected the data. Indicate the location and distances for each of the phases.

Calculations:

Phase 1
The conversion of distance to meters, work shown below

Phase 1 continued

The calculation for acceleration, work shown below

d = _____ m

t = _____ s

v_i = 0 m/s

a = ?

The calculation for final speed, work shown below

v_i = 0 m/s

t = _____ s

a = _____ m/s^2

v_f = _____ m/s

Phase 2

The conversion of distance to meters, work shown below

The calculation for constant speed, work shown below

d = _____ m

t = _____ s

v = ?

Phase 3

The conversion of distance to meters, work shown below

The calculation for acceleration, work shown below

v_i = _____ m/s

t = _____ s

v_f = 0 m/s

a = ?

Questions: [Complete Conclusion on following page.]

1) The final speed in phase 1 should be the same as the constant speed for phase 2. Explain why this is true.

2) Was your final speed in phase 1 the same as your constant speed for phase 2? If they were not the same, offer an explanation.

Conclusion: