Name _____Answer Key_____ Date _____

Honors Physics Kinematics WS #5H

Period _____ Mrs. Nadworny

Acceleration

Directions: Read textbook pages 48 – 58. Solve the following problems using the GUESS method. Show all work clearly.

1. An observer recorded the following data for the motion of a car undergoing constant acceleration.

Time (s)	**Speed** (m/s)
3.0	4.0
5.0	7.0
6.0	8.5

What was the magnitude of the acceleration of the car?

A) 1.3 m/s^2 B) 1.5 m/s^2 C) 2.0 m/s^2 D) 4.5 m/s^2

2. Mark Meiwurdz is buzzing around town on his skateboard at 6.1 m/s when he runs into some dirt that slows him down at a rate of - 0.79 m/s^2. How long will it take him to come to a complete stop?

$$t = \frac{v_f - v_i}{a} = \frac{0\ \frac{m}{s} - 6.1\ \frac{m}{s}}{-0.79\ \frac{m}{s^2}} = 7.7\ s$$

3. If Dusty Rhodes' Corvette can go from zero to 24 m/s in 2.15 seconds, what is its rate of acceleration?

$$a = \frac{v_f - v_i}{t} = \frac{24\ \frac{m}{s} - 0\ \frac{m}{s}}{2.15\ s} = {}^{+}11\ \frac{m}{s^2}$$

4. A car with an initial velocity of 16.0 meter per second east slows uniformly to 6.0 meters per second east in 4.0 seconds. Calculate the acceleration of the car during this 4.0 second interval.

$$a = \frac{v_f - v_i}{t} = \frac{6.0\ \frac{m}{s} - 16.0\ \frac{m}{s}}{4.0\ s} = -2.5\ \frac{m}{s^2} = 2.5\ \frac{m}{s^2}\ \text{West}$$

Answers in size order: 2.5, 7.7, 11