Name : _____

SPH3UI Unit #1 : Kinematics

Working with the Big 5 Equations – In Class Assignment

Answer the questions on a separate sheet of paper and place your final answers in the tables below. Pay attention to significant digits and units.

1.	2.	3.	4.	5.
/3	/3	/3	/3	/3

6.	7.	8.	*units, form,significant digits*	**Total**
		see back of page		
/3	/4	/8	/5	/35

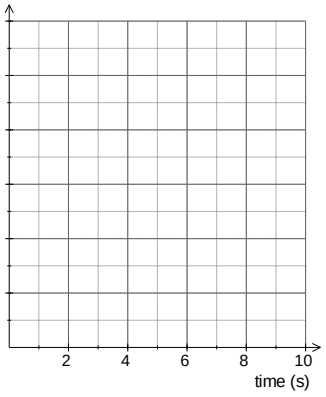
Use the GRS technique in answering these questions:
G – state the Given variables, R – state the Required variable, S – Solve the problem

1. Mary is bombing around on a Jetski and is causing it to undergo constant acceleration. During the acceleration, the Jetski's average velocity is 12.0 m/s and its initial velocity was 8.0 m/s. What is the Jetski's final velocity after acceleration?
2. Jess is inline skating and is travelling at 4.00m/s. She begins a constant acceleration lasting 2.00s and covers 20.0m while accelerating. What is her final velocity after the 2.00s?
3. Mitch is driving his motorcycle through a motocross event and, with an initial constant velocity of 27m/s, accelerates up to a velocity of 39m/s at a constant rate. He covers 66m during this acceleration. How long did his acceleration last?
4. Emily is a very competent parachutist and enjoys free falling before opening her chute. After her "free fall" she is falling at 27m/s when she decides to open her chute to slow down. After 5.0 seconds, Emily's new velocity is now 12m/s. What was her acceleration during this 5.0 second interval?
5. A stone is dropped off a very high cliff that is exactly 490m high. The stone accelerates downwards due to gravity (you can ignore any effects due to air resistance). How long does it take for the stone to hit the ground?
6. How fast would a snowboarder be going if he underwent a constant acceleration of 2.95 m/s^2 for a distance of 55.0m if he started from rest?
7. Seeing a cruiser at the side of the road up ahead, Will slows down his car at a constant rate of 0.50m/s^2 until his final velocity is 79.2 km/h. It takes him 20s ($2.0x10^1$s) to slow down. What distance (in metres) did Will travel during this 20 seconds?

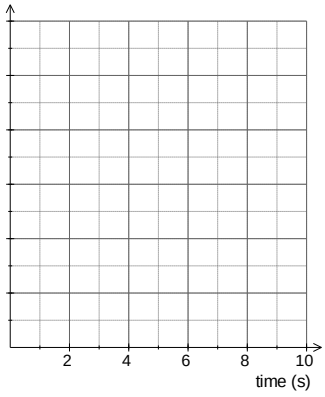
8. A car can accelerate uniformly from rest (0 km/hr) to 108km/hr in 10 seconds. Calculate the acceleration of the car (in m/s^2) and complete the table below. Use the three supplied graphs to show the a-t, v-t and d-t graphs (be sure to label the vertical axis). (you can assume 2 significant digits in all of your answers).

t (s)	d (m)	V (m/s)
0.0	0.0	0.0
2.0		
4.0		
6.0		
8.0		
10.0		

Position-Time Graph



Velocity-Time Graph



Acceleration-Time Graph