## Physics – Constant Acceleration Practice (Show equation – substitution – solve with units)

- 1) A poorly tuned car accelerates from rest to a speed of 28 m/s in 20 s.
  - a. What was the car's acceleration?
  - b. How far does the car travel in this time?
- 2) A car was initially traveling 30 m/s. After 6 seconds, its final speed was 15 m/s.a. What was the car's acceleration?
- 3) A student falls asleep while Mr. Sligh is lecturing and falls from the top of a 30 meter tall building. The student's acceleration was 10 m/s<sup>2</sup>. (He was teaching how the devil brought Jesus on top of the temple).
  a. What speed was the student falling when he hit the ground?
  - b. How much time did it take for him to fall?
- 4) A student rolls down a hill from rest with a constant acceleration of  $2.0 \text{ m/s}^2$  for 15 seconds.
  - a. What speed was the student traveling at the end of this time?

b. What was the length of the hill?

- 5) A mountain goat starts a rock slide and the rocks crash down the slope of 100m in 5 seconds.
  - a. With what acceleration did the rocks fall?
  - b. What was the speed of the rocks at the bottom of the hill?
- 6) A dog runs down his driveway with an initial speed of 5 m/s for 8 seconds. He then sees a cat and increases his speed constantly to 10 m/s in the next 5 seconds.
  - a. Sketch out a velocity-time graph of the given scenario.



- b. What was the dog's acceleration once he saw the cat?
- 7) A car starts from rest and accelerates uniformly to reach a speed of 21 m/s in 7.0 s.a. What was the car's rate of acceleration?
  - b. What was the speed of the object after 7.0 seconds?
  - c. How far did the car travel in 7.0 seconds?