Name: _____ Bell: _____ Date:_____

Running a Yellow Light

1. A car is traveling at 15 m/sec (30 mph) on a snowy road. With a traffic light that has a "yellow time" of 3 seconds, how far away from the light could the car be and get through on yellow without braking?

2. If because of the snow, the car in problem 1 has a maximum deceleration of -2 meters/sec^2, what time will be required to stop the car?

3. What is the average velocity of the car during the time that it is stopping in problem , and how far does it go in this time?

4. Between what distance from the stoplight will the problem in car 2 have "no options" and run through the red light regardless of what the driver does?

5. How many seconds would the "time for yellow" have to be for the car to be able to just get through the light at a constant velocity from the minimum stopping distance found in problem 3?

6. What effect would reaction time have on the stopping distance of the car?

7. Would a car traveling at 20 m/sec have any point at which it could not get through the light, given that the "time for yellow" was 4 seconds, the road was icy and the maximum deceleration was -2m/sec^2? If yes, between what distances?

8. Given your answer in problem 7, explain why even with a long time for yellow, it is dangerous to drive to fast on icy roads.