Movin' 'n Groovin'

Level D

A highway patrol officer is seated on a motorcycle on a curvy section of Highway 1. The posted speed limit is 45 miles per hour on this stretch of highway. The officer is monitoring traffic using radar. The next exit is 3.6 miles up the road. The radar picks up a speeding car averaging 68 mph. When the officer tries to start his motorcycle to follow the car, it won't start. He tries again and again, and soon he fears that he won't be able to catch the speeding car before it turns off the highway. Finally, his motorcycle starts and he begins the pursuit 30 seconds after the speeding car has passed him on the roadside.

How fast does the officer need to go to catch up to the speeding car? What is his average speed in pursuit? Explain your solution strategy.

Is the officer's speed reasonable and safe? Explain why this is or is not a good location at which to monitor traffic.