

Your friend has just been in a traffic accident and is trying to negotiate with the insurance company of the other driver to pay for fixing her car. She believes that the other car was speeding and therefore the accident was the other driver's fault. She hopes that you can prove her conjecture. She takes you out to the scene of the crash and describes what happened. She was traveling North when she entered the fateful intersection. There was no stop sign, so she looked in both directions and did not see another car approaching. It was a bright, sunny, clear day. When she reached the center of the intersection, her car was struck by the other car which was traveling East. The two cars remained joined together after the collision and skidded to a stop. The speed limit on both roads entering the intersection is 50 mph. From the skid marks still visible on the street, you determine that after the collision the cars skidded 56 feet at an angle of 30° north of east before stopping. She has a copy of the police report which gives the make and year of each car. At the library you determine that the weight of her car was 2600 lbs. and that of the other car was 2200 lbs., where you included the driver's weight in each case. The coefficient of kinetic friction for a rubber tire skidding on dry pavement is 0.80. It is not enough to prove that the other driver was speeding to convince the insurance company. She must also show that she was under the speed limit.