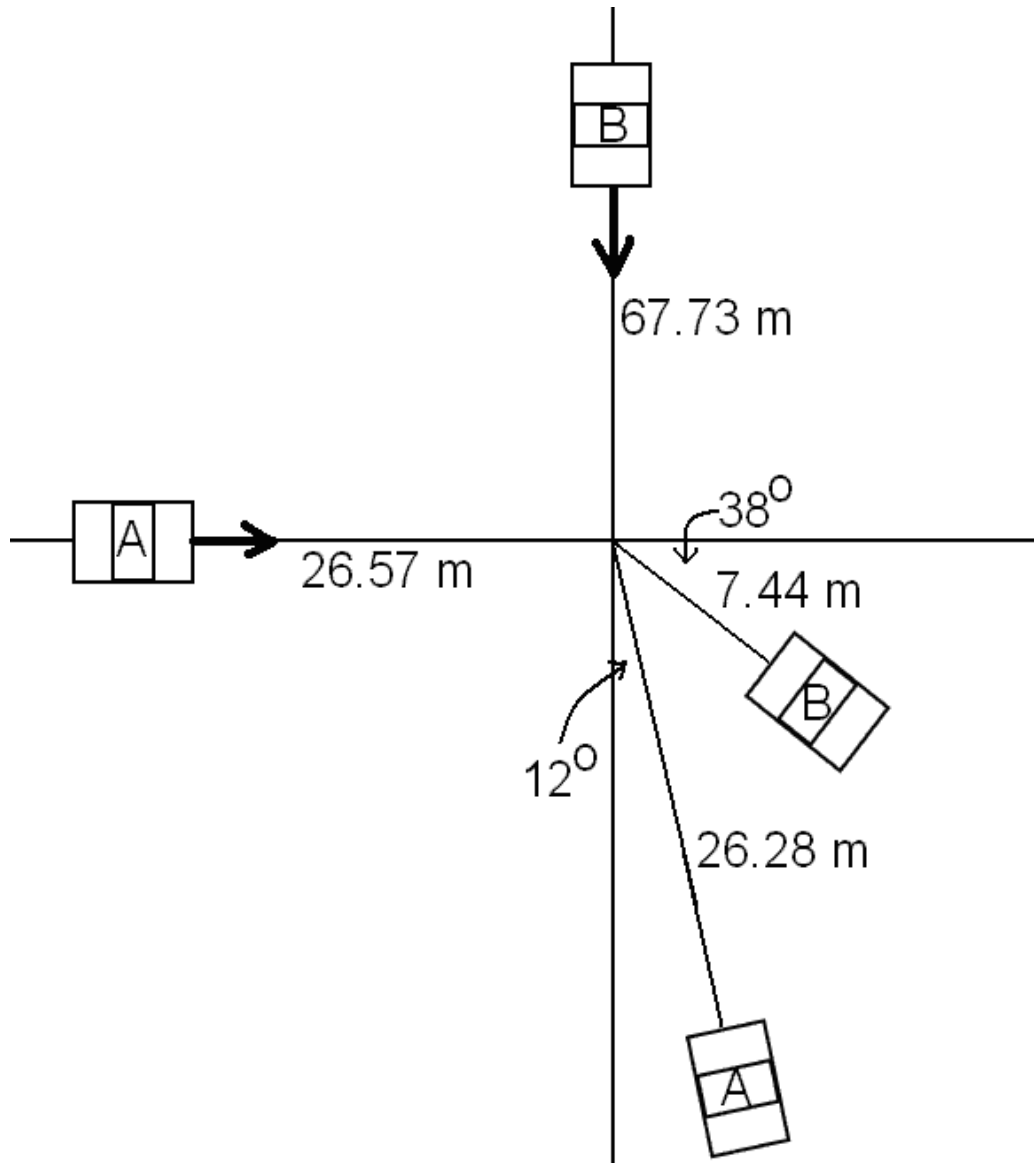


AP Physics 1 Unit #4 Pretest Problem

Name _____

Period _____

An accident has occurred between two cars. The responding police officer's sketch of the scene is shown below.



Car A was approaching an intersection from the left of the sketch and car B was approaching from the top. The actual collision occurred at the origin of the sketch's axes. The distances indicated on the sketch are the lengths of the skid marks left by the cars. When analyzing this collision consider the wheels on the cars to be locked for the entire length of the skids, which is to say there is no rotational motion for the wheels. Other facts known about this accident are that car A has a mass of 1000 kg, car B has a mass of 1200 kg and the coefficient of friction between the tires and the road is a constant 0.80. The masses of the cars do not change as a result of the collision.

1) How much work did friction perform in bringing car A to a stop after the collision?

2) What was the speed of car A immediately after the collision?

3) What was the momentum of car B immediately after the collision?

4) The speed limit in the area is 120 km/h. Determine if either car was speeding before the brakes were applied at the positions indicated in the sketch.

5) Which type of collision is this?

_____ Elastic _____ Inelastic _____ Perfectly Inelastic

Justify your answer.