

Two government agents (FBI agents Mulder and Scully) need your physics expertise to determine why an alien spaceship exploded. The wreckage of the spaceship is in three large pieces around a northern Minnesota town. The center of mass of one piece (mass = 300 kg) of the spaceship landed 6.0 km due north of the center of town. Another piece (mass = 1000 kg) landed 1.6 km to the southeast (36 degrees south of east) of the center of town. The last piece (mass = 400 kg) landed 4.0 km to the southwest (65 degrees south of west) of the center of town. There are no more pieces of the spaceship. The Army, which was watching the spaceship on its radar, claims it was hovering motionless over the center of town when the spaceship spontaneously exploded and the pieces fell to the ground. Agents Mulder and Scully do not believe that the spaceship exploded on its own accord. They think a missile hit it. They ask you to determine whether the fragments found are consistent with the spaceship exploding spontaneously. If not, determine from what direction the missile came. (For simplicity, assume that the pieces of the spaceship after the explosion are moving horizontally.)