

Physics 10154 - Exam #5B

Answer the following two questions. Be sure to clearly indicate your answer with a circle or box. Show all work. If I cannot see how you arrived at an answer, I will deduct points!

1. A block is initially at rest at the top of a 2.0-meter plane inclined at 25° with respect to the horizontal. By the time the block slides down to the bottom of the plane, it is moving with a speed of 2.9 m/s. What is the coefficient of kinetic friction between the block and the inclined plane?

2. A 3.0-kg wooden block is given an initial speed of 7.5 m/s along a rough table with a coefficient of kinetic friction of 0.22 between the table and the block. After moving 2.2 meters along the horizontal surface, the block encounters a relaxed horizontal spring with a spring constant of 35 N/m.

Keeping in mind that friction continues to act on the block even while the spring is slowing the block down, to what maximum value of x is the spring compressed?