

10. ●● **Combining conservation laws.** A 15.0 kg block is attached to a very light horizontal spring of force constant 500.0 N/m and is resting on a frictionless horizontal table. (See Figure 8.38.) Suddenly it is struck by a 3.00 kg stone traveling horizontally at 8.00 m/s to the right, whereupon the stone rebounds at 2.00 m/s horizontally to the left. Find the maximum distance that the block will compress the spring after the collision. (*Hint:* Break this problem into two parts—the collision and the behavior after the collision—and apply the appropriate conservation law to each part.)

