Name_____ Class Period _____

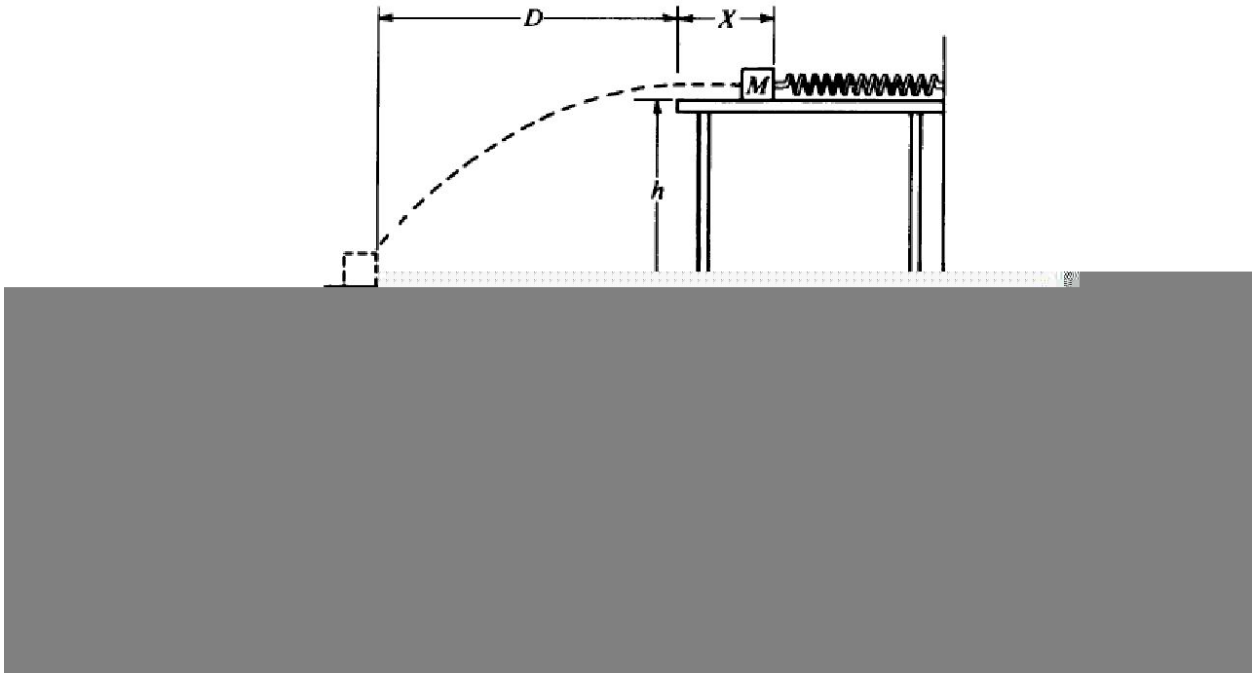
Spring Problems

1. A dart of mass 0.100 kg is pressed against the spring of a toy dart gun. The spring (k = 250 N/m) is compressed 6.0 cm and released. If the dart detaches from the spring when the spring reaches its natural length, what speed does the dart acquire?

2. A ball of mass m = 2.60 kg, starting from rest, falls a vertical distance h = 55.0 cm before striking a vertical coiled spring, which it compresses an amount x = 15.0 cm. Determine the springs k (stiffness constant).

3. A spring with k = 83 N/m hangs vertically next to a ruler. The end of the spring is next to the 15 cm mark on the ruler. If a 2.5 kg mass is now attached to the end of the spring and the mass is allowed to fall, where will the end of the spring line up with the ruler marks when the mass is at its lowest position?

4. A 1200 kg car moving on a horizontal surface has speed v = 85 km/hr when it strikes a horizontal coiled spring and is brought to rest in a distance of 2.2 m. What is the spring constant of the spring?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