Conservation of energy problems

1. The Eiffel Tower in Paris is 300.00 m tall. Bad Bob throws a 7.00 kg bowling ball downward off of the top with an initial velocity of 1.50 m/s.
   a. What is the total mechanical energy at the beginning? (20588 J)
   b. With what velocity will the ball hit the ground? (76.7 m/s)
   c. If the ball hits Iron Man and drives him 3.25 m into the ground, with what force did the ball hit IM? (6340 N)
2. A 7.60 g pop-up toy is compressed 4.50 cm. When it releases, it reaches a maximum height of 3.42 m.
   a. Calculate the spring constant of the toy. (62.9 N/m)
   b. What is the toy's initial velocity as it leaves the table? (2.59 m/s)
   c. A split second after the toy leaves the table, the 5.34 g bobble head pops off from the spring. What height will it reach? (0.34 m?)