**P7.4-1)** A 5-kg mass is permanently fixed to a linear spring and is free to move up and down between two supports. The mass is released from rest at position 1 where the spring is compressed a distance Δx. After the mass is released it reaches a height of $h = 0.2$ m above position 1 at which time it reverses its direction of motion. Determine the initial spring compression Δx if the spring has a stiffness of 3000 N/m. Also determine the speed of the mass at position 3.

P7.4-1

Given:

Find:
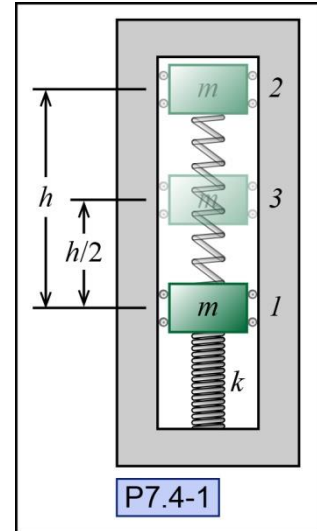
Solution:

Is this a conservative or non-conservative system?	**Use the work-energy balance to determine the speed of the mass at position 3.**
Conservative Non-conservative	
Use the work-energy balance to determine the initial spring compression.	

$\Delta x =$ _____

$v_3 =$ _____