



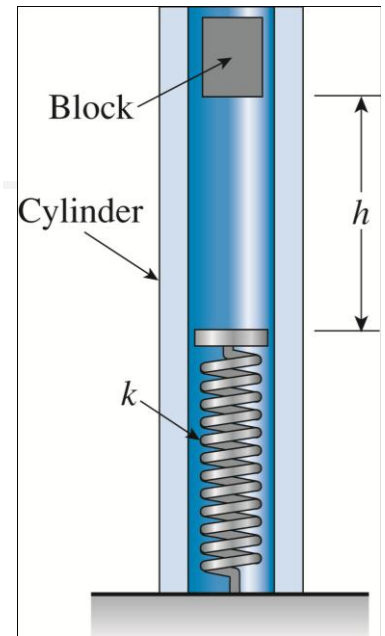
作業6、11/1習題

- 2.8-4、2.8-10
- 2.10-1

- 11月8日 考試前繳交

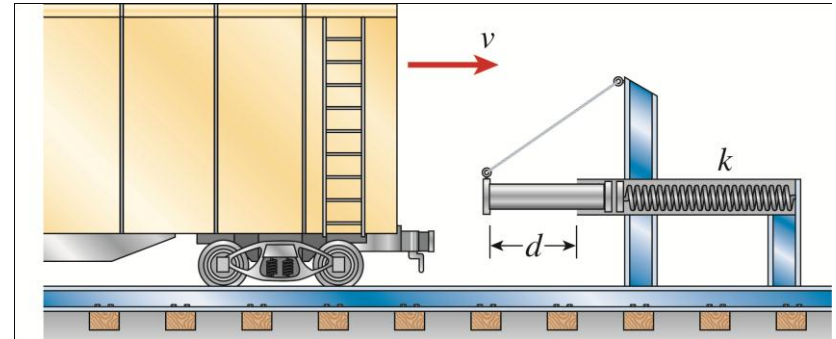
Problem 2.8-4 A block weighing $W = 5.0 \text{ N}$ drops inside a cylinder from a height $h = 200 \text{ mm}$ onto a spring having stiffness $k = 90 \text{ N/m}$ (see figure).

- (a) Determine the maximum shortening of the spring due to the impact, and (b) determine the impact factor.



Problem 2.8-10 A bumping post at the end of a track in a railway yard has a spring constant $k = 8.0 \text{ MN/m}$ (see figure). The maximum possible displacement d of the end of the striking plate is 450 mm.

What is the maximum velocity v_{\max} that a railway car of weight $W = 545 \text{ kN}$ can have without damaging the bumping post when it strikes it?



Problem 2.10-1 The flat bars shown in parts (a) and (b) of the figure are subjected to tensile forces $P = 13$ kN. Each bar has thickness $t = 6$ mm.

- (a) For the bar with a circular hole, determine the maximum stresses for hole diameters $d = 25$ mm and $d = 50$ mm if the width $b = 150$ mm.
- (b) For the stepped bar with shoulder fillets, determine the maximum stresses for fillet radii $R = 6$ mm and $R = 13$ mm if the bar widths are $b = 100$ mm and $c = 65$ mm.

