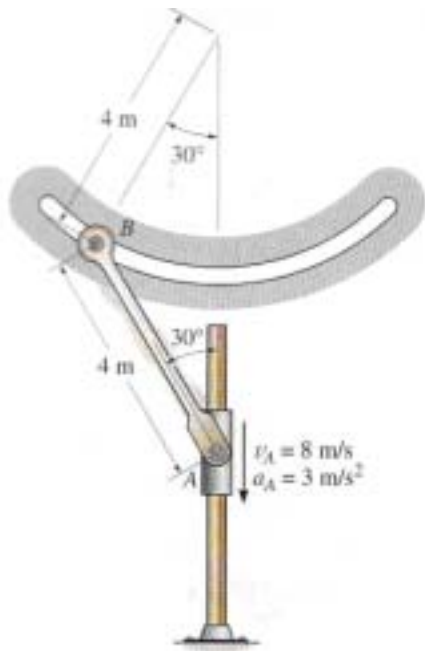


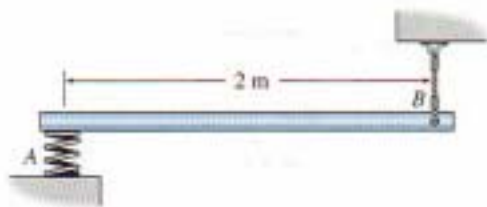
國立屏東科技大學 九十五 學年度 碩士班暨碩士在職專班招生考試
動力學

【每題 25 分，共計 100 分】

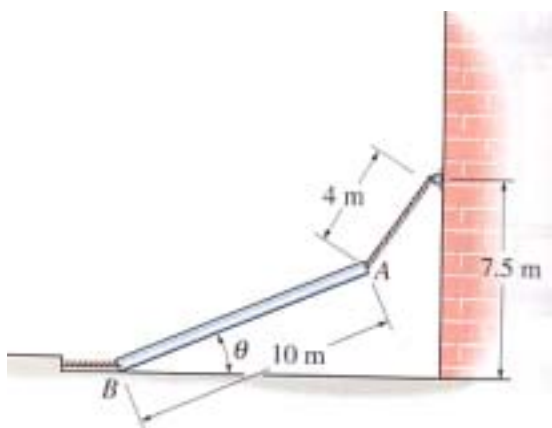
1. The ends of the bar AB are confined to move along the paths shown. At a given instant, A has a velocity of 8 m/s and an acceleration of 3 m/s^2 . Determine the angular velocity and angular acceleration of AB at this instant.



2. The 4-kg slender rod is supported horizontally by a spring at A and a cord at B. Determine the angular acceleration of the rod and the acceleration of the rod's mass center at the instant the cord at B is cut. Hint: The stiffness of the spring is not needed for the calculation.



3. The slender beam having a weight of 150 kN is supported by two cables. One cable is at end B and the other is at end A. The cable at end B is cut so that the beam is released from rest when $\theta = 30^\circ$, determine the speed at which end A strikes the wall. Neglect friction at B.



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4. The plank has a weight of 30 kN, center of gravity at G , and it rests on the two sawhorses at A and B . If the end D is raised from rest, determine how high end C will rise from the top of the sawhorses after the plank falls so that it rotates clockwise about A , strikes and pivots on the sawhorse at B , and rotates clockwise off the sawhorse at A .

