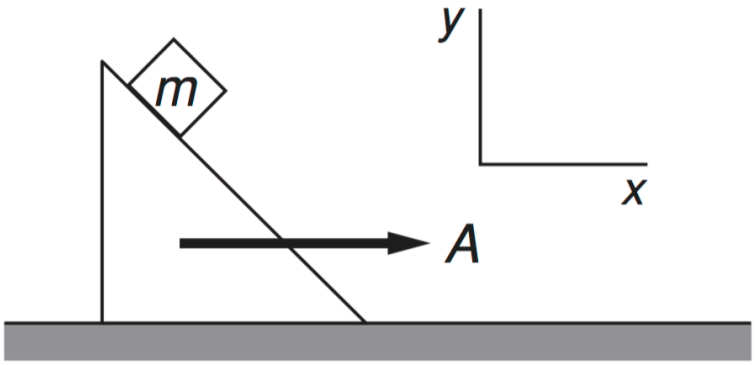
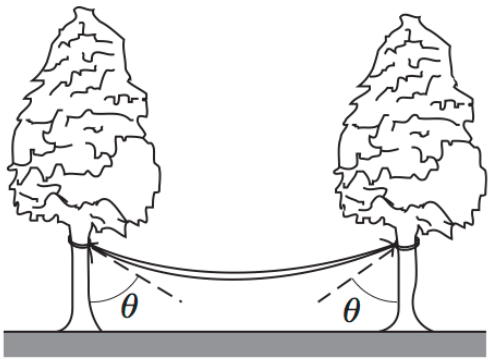
# Tutorial 5

**Problem 1.** (K. & K. Ex. 2.11) A 45° wedge is pushed along a table with constant acceleration $A$. A block of mass $m$ slides without friction on the wedge. Gravity is directed downward.




1. Make the force diagram of the block.
2. Choose a convenient coordinate system and give the equations of motion for the block.
3. Give the constraint equation for coordinates of the block.
4. Solve for the acceleration of the block.

**Problem 2.** (K & K, Ex. 3.10)




A uniform rope of weight $W$ hangs between two trees. The ends of the rope are the same height, and they each make an angle $\theta$ with the trees. Find

1. The tension of either end of the rope.
2. The tension in the middle of the rope.