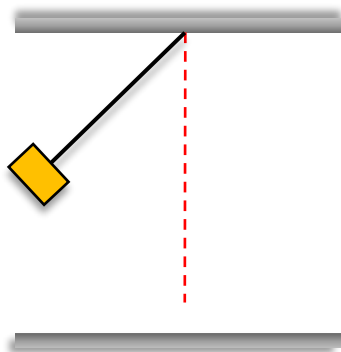


CONCEPT: ENERGY CONSERVATION WITH PENDULUMS

- In pendulum problems, objects travel in a curved path, so we use Energy to solve.
 - Usually, the distance between the pendulum and the floor is unknown, so we set $y = 0$ at the _____.

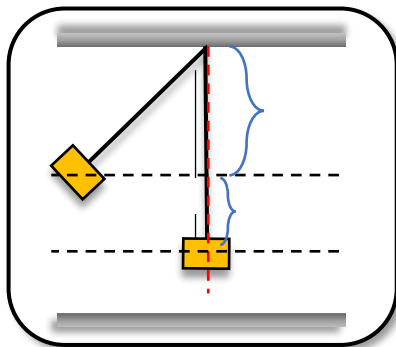
EXAMPLE: A pendulum is made of a block of unknown mass and a 2-m long massless rope. You pull the block up until it makes a 37° angle with the vertical, then release. Calculate the pendulum's maximum speed.



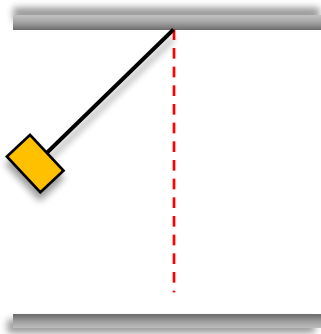
CONSERVATION OF ENERGY

- 1) Draw Diagram
- 2) Write Cons. of Energy EQ
- 3) Eliminate & expand terms
- 4) Solve

- In pendulum problems where no heights are given, you'll need the "Pendulum Equation": _____ = _____



PROBLEM: A pendulum built from a 2-kg block and a 3-m long massless rope is attached to the ceiling. You pull the block up until it is 1m above its lowest point, then release. Calculate the **a)** pendulum's max. speed; **b)** rope's tension at the bottom.



CONSERVATION OF ENERGY

- 1) Draw Diagram
- 2) Write Cons. of Energy EQ
- 3) Eliminate & expand terms
- 4) Solve