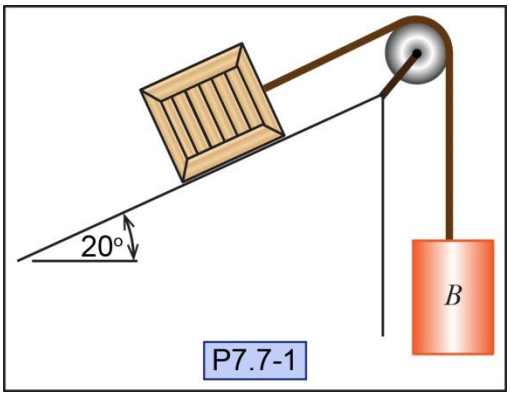
P7.7-1) Crate A with a mass of 50 kg is attached to load B of 30 kg by the massless, inextensible cord shown. If the system is released from rest, determine the speed of each mass after load B falls 2 m. The coefficient of kinetic friction between the crate and the inclined surface is 0.15 and the pulley can be considered massless.

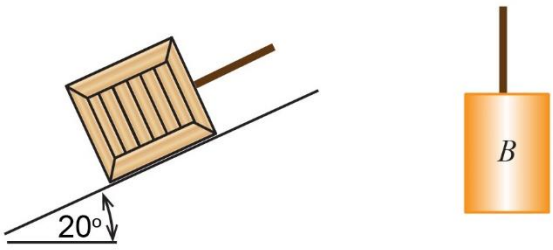


Given:

Find:

Solution:

Free-body diagram



Indicate on the FBD whether each force does **no** work, **conservative** work, **non-conservative** work, or is **internal** and we don't need to include it in the work-energy balance equation.

Calculate the friction force.

F_{fk} = _____

Work-Energy Balance

Use the work-energy balance equation to determine the speed after B has moved 2 m. Write down the work-energy balance equation in variable form and solve for the speed.

WE.Eq: _____

v = 1.69 m/s