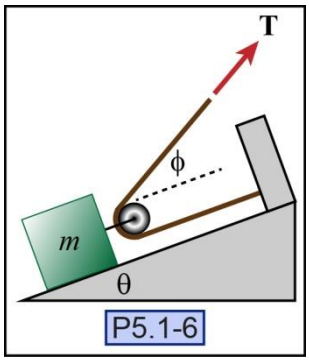
P5.1-6)[fe] A 55-kg block is being pulled up an inclined surface by a 320-N force through the rope and pulley system shown. The surface is inclined at a 20-degree angle and the end of the rope makes a 30-degree angle relative to the inclined surface. The coefficient of kinetic friction between the inclined surface and the block is 0.5. Determine the acceleration of the block.



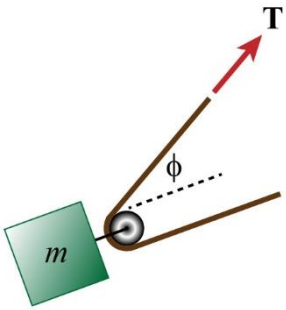
P5.1-6

Given:

Find:

Solution:

Draw a free-body diagram of the block.



Calculate the kinetic friction.

F_{fk} = _____

Determine the block's acceleration.

Write down the block's equation of motion.

a = _____