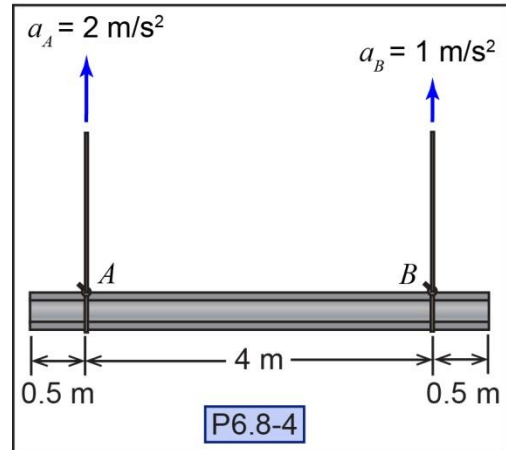


P6.8-4) A 40-kg beam is being lifted from rest by two cables with accelerations as shown. Determine the tension in each of the two cables for the instant shown.

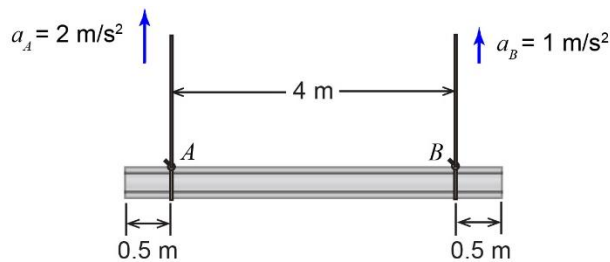
Given:

Find:

Solution:



Free-body diagram



Angular acceleration

Use kinematics to determine the angular acceleration of the beam.

$\alpha =$ _____

Mass Moment

Think about what reference point you will need to use when applying Euler's second law.

Reference point = _____

Calculate the mass moment of inertia of the beam with respect to the mass center and the chosen reference point.

$I_G =$ _____

$I =$ _____

Equation of Motion

Use Euler's second law to determine the tensions in the ropes.

$$T_A = \underline{\hspace{10em}}$$

$$T_B = \underline{\hspace{10em}}$$