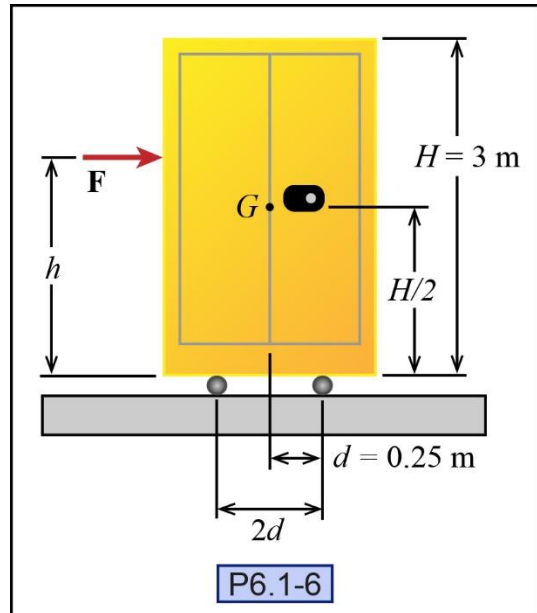


P6.1-6) Determine the maximum height, h , that the horizontal force F may be applied to the rolling cabinet without it tipping over. The mass of the cabinet is 100 kg and the magnitude of F is 500 N. Neglect friction and the size of the wheels.

Given:

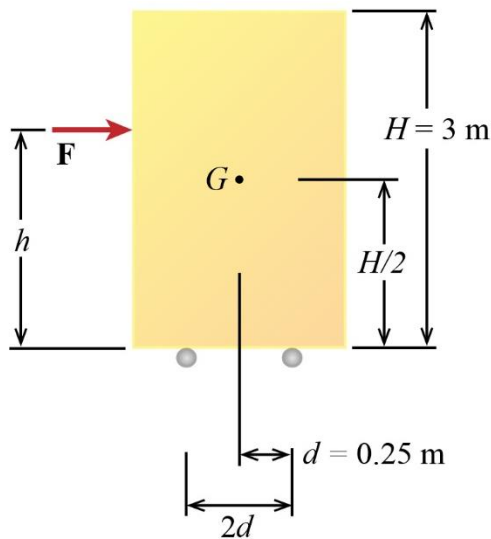
Find:

Solution:



Free-Body Diagram

Draw a free-body diagram of the cabinet.



When the cabinet begins to tip about the front wheel, which forces in your FBD go to zero?

Equations of Motion

Use Newton's second law to derive the cabinet's equation of motion in variable form.

Eq.M: _____

Use Euler's second law to derive the cabinet's equation of motion in variable form. Sum the moments about a point that will eliminate the most unknowns.

Eq.M: _____

Height

Determine the maximum height at which F can be applied before the cabinet will tip.

$$h = \underline{\hspace{2cm}}$$