

Crate Brick Box Car FBDs

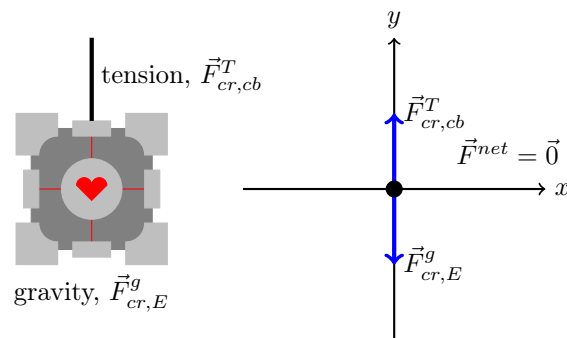
Benjamin Bauml

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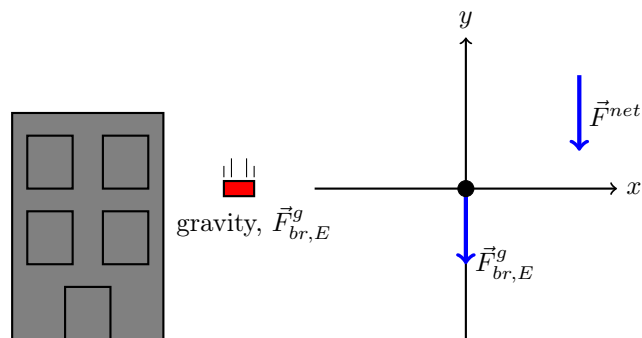
XX-1: Crate, Brick, Box, and Car FBDs

For the following exercises, draw the situation and identify and name all the forces acting on the object. Then, using the particle model, draw a free-body diagram for the object. Include the direction of the net force \vec{F}_{net} . Neglect air resistance.

(a) A heavy crate is being lowered straight down at a constant speed by a steel cable.

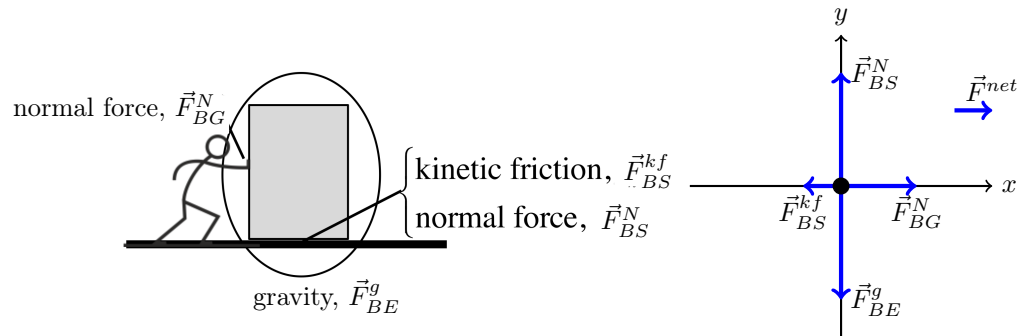


(b) A brick is falling from the roof a three-story building.



(c) A girl is pushing a box across a rough horizontal floor at a steadily increasing speed.

We will use the subscript S (as in “surface”) for the floor.



(d) You’ve slammed on your car brakes while going down a hill. The car is skidding to a stop.

