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Two astronauts, one 140 kg and the other 170 kg, are standing on opposite edges of a 1000 kg space platform, at rest relative to the mother ship. They walk at constant speeds of 2.0 m/s, relative to the mother ship, toward the other edge of the platform. (They wear special magnetic shoes that allow them to walk along the metal platform.) As they walk, the platform moves through space.

Free-Body Diagrams

140 kg astronaut



platform



170 kg astronaut



Mathematical Analysis

Event 1:

Event 2:

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