Chapter 8 Problem 17 [†]

Given
$m_a = 67.0\ kg$
$m_s = 73,000\ kg$
$r = 84.0\ m$

Solution
Find the force between the astronaut and the shuttle.

The force of gravity is

$$F = G\frac{m_a m_s}{r^2}$$

$$F = (6.672 \times 10^{-11}\ Nm^2/kg^2)\frac{(67.0\ kg)(73,000\ kg)}{(84.0\ m)^2}$$

$$F = 4.62 \times 10^{-8}\ N = 46.2\ nN$$

[†]Problem from Essential University Physics, Wolfson