Problem 1  Newton’s Laws:

Two blocks of mass $m_1 = 2.0 \text{ kg}$ and $m_2 = 4.5 \text{ kg}$ are placed in contact with each other on a frictionless, horizontal surface. A force $\vec{F}$ of magnitude 3.0 Newtons is applied to $m_1$ as shown above.

(a) Find the magnitude of the acceleration of the system.

(b) Find the magnitude of the contact force between the two blocks.

(c) Now, suppose the the force $\vec{F}$ is applied towards the left on mass $m_2$, as shown below. Is the magnitude of the acceleration the same? Is the contact force the same? Explain.