

75. (a) The reaction force to  $\vec{F}_{MW} = 180 \text{ N west}$  is, by Newton's third law,  $\vec{F}_{WM} = 180 \text{ N east}$ .
- (b) Applying  $\vec{F} = m\vec{a}$  to the woman gives an acceleration  $a = 180/45 = 4.0 \text{ m/s}^2$ , directed west.
- (c) Applying  $\vec{F} = m\vec{a}$  to the man gives an acceleration  $a = 180/90 = 2.0 \text{ m/s}^2$ , directed east.