

64. We take rightwards as the  $+x$  direction. Thus,  $\vec{F}_1 = 20\hat{i}$  in Newtons. In each case, we use Newton's second law  $\vec{F}_1 + \vec{F}_2 = m\vec{a}$  where  $m = 2.0$  kg.

(a) If  $\vec{a} = +10\hat{i}$  in SI units, then the equation above gives  $\vec{F}_2 = 0$ .

(b) If  $\vec{a} = +20\hat{i}$  m/s<sup>2</sup>, then that equation gives  $\vec{F}_2 = 20\hat{i}$  N.

(c) If  $\vec{a} = 0$ , then the equation gives  $\vec{F}_2 = -20\hat{i}$  N.

(d) If  $\vec{a} = -10\hat{i}$  m/s<sup>2</sup>, the equation gives  $\vec{F}_2 = -40\hat{i}$  N.

(e) If  $\vec{a} = -20\hat{i}$  m/s<sup>2</sup>, the equation gives  $\vec{F}_2 = -60\hat{i}$  N.