

68. The net force is in the  $y$  direction, so the unknown force must have an  $x$  component that cancels the  $(8.0\text{ N})\hat{i}$  value of the known force, and it must also have enough  $y$  component to give the  $3.0\text{ kg}$  object an acceleration of  $(3.0\text{ m/s}^2)\hat{j}$ . Thus, the magnitude of the unknown force is

$$\left|\vec{F}\right| = \sqrt{F_x^2 + F_y^2} = \sqrt{(-8.0)^2 + 9.0^2} = 12\text{ N} .$$