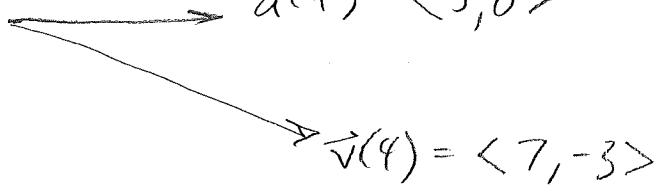
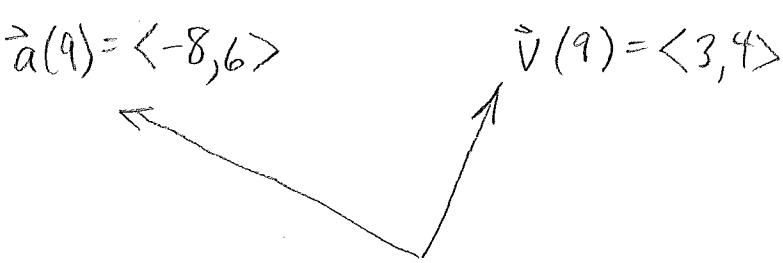
4-27 Class Exercises — Solutions

(1)



$\vec{v}$ gives direction of motion of an object, $\vec{a}$ indicates force on the object.

Because the force is somewhat aligned with the direction of motion, it is causing the object to speed up. But it is also somewhat to the left of the direction of motion, so it is also causing the object to turn left.



Note that there is a 3:4 ratio in each vector. We see that $\vec{v}(9) \cdot \vec{a}(9) = 0$, so $\vec{v}(9)$ and $\vec{a}(9)$ are perpendicular.

Thus the force of acceleration doesn't cause speed to change, but it causes the object to turn left again.