71. We choose horizontal x and vertical y axes such that both components of $\vec{v}_0$ are positive. Positive angles are counterclockwise from $+x$ and negative angles are clockwise from it. In unit-vector notation, the velocity at each instant during the projectile motion is

$$\vec{v} = v_0 \cos\theta_0 \,\hat{\mathrm{i}} + (v_0 \sin\theta_0 - gt)\,\hat{\mathrm{j}} \ .$$

(a) With $v_0 = 30$ m/s and $\theta_0 = 60°$, we obtain $\vec{v} = 15\,\hat{\mathrm{i}} + \hat{\mathrm{j}}$ in m/s, for $t = 2.0$ s. Converting to magnitude-angle notation, this is $\vec{v} = (16 \angle 23°)$ with the magnitude in m/s.

(b) Now with $t = 5.0$ s, we find $\vec{v} = (27 \angle -57°)$.