1. A skier leaves a ski jump with a speed $v=12.0 \mathrm{~m} / \mathrm{s}$ at $\theta=20.0^{\circ}$ above the horizontal as shown. The slope where she will land is inclined at $\phi=42.0^{\circ}$, and air resistance is negligible.
(a) Find the distance from the end of the ramp to where the jumper lands.
(b) Find the skier's horizontal and vertical velocity components just before landing.

