1. A 200-lb box is on a ramp. If a force of 80 lbs is just sufficient to keep the box from sliding, find the angle of inclination of the plane. (Assume no friction on the ramp.)

2. Suppose $\vec{u} = \langle -2, 1 \rangle$ and $\vec{v} = \langle 0,3 \rangle$.
   a) Find $|\vec{u}|$.

   b) Find $5\vec{v} - 2\vec{u}$.

   c) Write $\vec{v}$ in terms of $\vec{\imath}$ and $\vec{\jmath}$.

3. Find the magnitudes of the horizontal and vertical components of $\vec{v}$ given that $|\vec{v}| = 50$ and $\theta = 120°$.

4. Find the direction (in degrees) of $\vec{v} = \langle -2, -3 \rangle$.

5. Let $\vec{u} = \langle 3, -1 \rangle$ and $\vec{v} = \langle 2,4 \rangle$.
   a) Find $\vec{u} \cdot \vec{v}$.

   b) Find the angle between $\vec{u}$ and $\vec{v}$.

6. Determine if $\vec{u} = \langle 2, -5 \rangle$ and $\vec{v} = \langle 10, -4 \rangle$ are orthogonal.

Q: A man while looking at a photograph said, "Brothers and sisters have I none. That man's father is my father's son." Who was the person in the photograph?