Let \( \vec{a} \) and \( \vec{v} \) be non-zero vectors. Show that the point on the line \( \vec{a} + t\vec{v} \) nearest the origin is given by \( \vec{a}_{\perp} \). (Use your knowledge of one-variable calculus.)

- Find all unit vectors \( \vec{v} \) that are perpendicular to the vector \( \begin{pmatrix} 5 \\ 12 \end{pmatrix} \).
- Section 13.3: 77 and 78.
- Show that the Hint in Problem 13.3.97 is a true statement.
- From Section 13.4: 10, 12, 26, 30, 36, and 44.
- From Section 13.5: 4, 18, 22, 26, 30.