• The graded part of the homework is on WebAssign.

• The problems below are also assigned and you are responsible for doing them, but they will not be collected or graded.
1. Consider \( \vec{a} = 2\hat{i} \) and \( \vec{b} = -\hat{i} + 3\hat{k} \).

   (a) Use the dot product to find the angle (in degrees) between \( \vec{a} \) and \( \vec{b} \).

   (b) Use the cross product to find the angle (in degrees) between \( \vec{a} \) and \( \vec{b} \).

   (c) Are there any complications in either method?
2. Compute the point closest to $R = (8, 7)$ on the line through $P = (5, 1)$ and $Q = (9, 4)$.
3. Determine whether the following vectors point into the page (away from you) or out of
the page (towards you). Vectors $\vec{v}$ and $\vec{w}$ are shown below.

(a) $\vec{v} \times \vec{w}$
(b) $\vec{w} \times \vec{v}$
(c) $(3\vec{w} - 2\vec{v}) \times (\vec{v} - 4\vec{w})$