In this worksheet you will study the dot and cross products.

1. Consider the regular hexagon.
   (a) Compute the magnitudes $|u|$, $|v|$ and $|w|$.

   (b) What is the angle $\theta$?

   (c) Compute $u \cdot v$.

   (d) Compute $u \cdot w$.

   (e) What are $\text{proj}_u w$ and $\text{proj}_w v$?

   (f) What is the $x$-component of $u + v + w$?

(there's more on the back...)
2. Consider the triangle with vertices $P(1, 1, 3)$, $Q(2, 3, 1)$ and $R(-1, 2, -2)$.

(a) Compute the cosines of the three internal angles of the triangle.

(b) Find a vector orthogonal to the plane containing the triangle.

(c) Compute the area of the triangle.