Linear algebra 1R, Problem sheet 1

1. Compute and draw in coordinate system A, B, $A+B$ i $-2A+3B$ where:
   (a) $A=\binom{1}{0}$, $B=\binom{-1}{2}$, (b) $A=\binom{-3}{1}$, $B=\binom{-1}{1}$.
2. Write down parametric equation of the line passing through point A in the direction of vector U. Draw:
   (a) $A=\binom{1}{0}$, $U=\binom{-1}{-2}$, (b) $A=\binom{-3}{1}$, $U=\binom{1}{-1}$.
3. Write down equation of the line passing through point $A=\binom{1}{2}$ and orthogonal to vector $U=\binom{-1}{1}$.
4. Find four different vectors U, such that $\langle U, \binom{1}{1}\rangle = 0$.
5. Find $P_U(V)$ i $P_V(U)$ where (a) $U=\binom{1}{1}$, $V=\binom{-2}{2}$, (b) $U=\binom{0}{1}$, $V=\binom{3}{1}$.