Course 2E1 2006-07 (SF Engineers & MSISS & MEMS)

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Due: in the tutorial sessions next Wednesday/Thursday

Exercise 1

Find $\mathbf{v}-\mathbf{u}$, $3\mathbf{v}$, $\|\mathbf{v}\|$, the dot product $\mathbf{u}\cdot\mathbf{v}$ and determine whether $\mathbf{u}$ and $\mathbf{v}$ are orthogonal (or for which values of parameters $\mathbf{u}$ and $\mathbf{v}$ are orthogonal, if any are present):

(i) $\mathbf{u} = (2, 3, 0)$, $\mathbf{v} = (-3, 2, 0)$;

(ii) $\mathbf{u} = (1, 0, 0, 1)$, $\mathbf{v} = (1, 2, -1, 1)$;

(iii) $\mathbf{u} = (1, k, 2, -k)$, $\mathbf{v} = (0, k, 1, 3)$;

(iv) $\mathbf{u} = (a, -c, 0, b)$, $\mathbf{v} = (2c, a, c, 0)$.