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Mathematics 205: Linear Algebra
Fall Semester 2004
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Quiz #21
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Suppose W is the subset of $\Re^2$ consisting of the x and y axes, so $W = \left\{ \begin{bmatrix} x \\ y \end{bmatrix} : xy = 0 \right\}$ is the set of all points in $\Re^2$ for which either the first coordinate is 0 or the second coordinate is 0 or both coordinates are 0.

A. Show that if **u** is in W, then any scalar multiple of **u** is also in W.

B. Give two specific vectors in W whose vector sum is <u>not</u> in W.

C. Why is W not a subspace of $\Re^2$?