Math 224 Quiz 1 Thursday, September 6, 2007

1. Find all scalars c such that the vector $[c^2, -4]$ is parallel to the vector [1, -2].

2. Classify the vectors [2, 1, 4, -1] and [0, 1, 2, 4] as parallel, perpendicular, or neither.

3. Let
$$A = \begin{bmatrix} 1 & 0 & -1 \\ -2 & 2 & 0 \end{bmatrix}$$
. Let $B = \begin{bmatrix} 4 \\ 1 \\ -2 \end{bmatrix}$. Find AB and BA , if defined.

4. If B is an $m \times n$ matrix and if $B = A^T$, find the size of (a) A

(b) AA^T

(c) $A^T A$

Mathematics Department