

**Math 3013 Linear Algebra, Spring 2011**  
**Quiz 1**

January 20, 2011

1. Compute  $\cos \theta$  where  $\theta$  is an angle between vectors

$$\mathbf{u} = \begin{bmatrix} 2 \\ -1 \\ 1 \end{bmatrix} \quad \mathbf{v} = \begin{bmatrix} 1 \\ -2 \\ -1 \end{bmatrix}$$

2. Let  $A = [2 \ 1 \ 3]$ ,  $B = \begin{bmatrix} 0 & 2 & 0 \\ 1 & -5 & 3 \\ -1 & 0 & 4 \end{bmatrix}$ ,  $C = \begin{bmatrix} 1 & 3 \\ -1 & 0 \\ 1 & 2 \end{bmatrix}$ . Calculate  $AB^TC$ .