

Math 250 Introduction to Linear Algebra Fall 2009  
Final Exam Equation Sheet

$$\begin{bmatrix} \cos \theta & -\sin \theta \\ \sin \theta & \cos \theta \end{bmatrix}$$

$$\frac{\det M_i}{\det A}$$

$$A\mathbf{v} = \lambda\mathbf{v} \quad \Leftrightarrow \quad (A - \lambda I)\mathbf{v} = \mathbf{0}$$

$$\|\mathbf{u}\| \|\mathbf{v}\| \cos \theta$$

$$\frac{\mathbf{u} \cdot \mathbf{v}}{\mathbf{v} \cdot \mathbf{v}} \mathbf{v}$$

$$\mathbf{v}_j = \mathbf{u}_j - \frac{\mathbf{u}_j \cdot \mathbf{v}_1}{\mathbf{v}_1 \cdot \mathbf{v}_1} \mathbf{v}_1 - \frac{\mathbf{u}_j \cdot \mathbf{v}_2}{\mathbf{v}_2 \cdot \mathbf{v}_2} \mathbf{v}_2 - \cdots - \frac{\mathbf{u}_j \cdot \mathbf{v}_{j-1}}{\mathbf{v}_{j-1} \cdot \mathbf{v}_{j-1}} \mathbf{v}_{j-1}$$

$$\frac{\mathbf{u} \cdot \mathbf{v}_1}{\mathbf{v}_1 \cdot \mathbf{v}_1} \mathbf{v}_1 + \frac{\mathbf{u} \cdot \mathbf{v}_2}{\mathbf{v}_2 \cdot \mathbf{v}_2} \mathbf{v}_2 + \cdots + \frac{\mathbf{u} \cdot \mathbf{v}_k}{\mathbf{v}_k \cdot \mathbf{v}_k} \mathbf{v}_k$$

$$C(C^T C)^{-1} C^T$$

$$(C^T C)^{-1} C^T \mathbf{y}$$