

Quiz 2

Summer 2011

Math 1180

Your name: _____

1. [5 points] Use the Gauss-Jordan method to find the inverse A^{-1} of the matrix

$$A = \begin{bmatrix} 3 & 0 & 0 \\ 1 & 3 & 0 \\ 0 & 1 & 3 \end{bmatrix}$$

2. [5 points] Compute B^8 and B^9 if

$$B = \begin{bmatrix} \frac{1}{\sqrt{2}} & -\frac{1}{\sqrt{2}} \\ \frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} \end{bmatrix}$$

3. [5 points] We know that $(AB)^T = B^T A^T$. Using induction prove, that for all $n \geq 1$,

$$(A_1 A_2 \cdots A_n)^T = A_n^T \cdots A_2^T A_1^T.$$

bonus problem [5 points extra] If A is any matrix, to what is $\text{tr}(AA^T)$ equal?

