

Name:

MATH 221

BOSS FIGHT 2 BONUS QUIZ (10PTS)

You may use a non-graphing calculator on this test and you are allowed a page of notes front and back. You have 10 minutes. Most of that time is for Problem 2. Be sure to box your answers, thanks!

**Problem 1:** (5pts) Let  $\gamma = \left\{ \frac{1}{\sqrt{3}}(1, 1, 1), \frac{1}{\sqrt{2}}(-1, 0, 1) \right\}$  give a basis for  $W = \text{span}(\gamma)$ . Calculate  $[(a, b, c)]_\gamma$  given that  $(a, b, c) \in W$ .

**Problem 2:** (5pts) Let  $A = \begin{bmatrix} 3 & 6 & 4 \\ 3 & 1 & 4 \\ 3 & 6 & 0 \\ 3 & 1 & 0 \end{bmatrix}$ . Find the  $QR$ -decomposition of the given matrix.