

# Math 321 Quiz 2 (G)

March. 6/8, 2012

Your Name:

Your Section:

---

*Instructions: You have 20 minutes to solve the following problems within groups.*

1. A particle with mass  $m$  is doing uniform rotation about  $\vec{r}_a$ . The rotation vector is constant  $\vec{\omega}$ . The position vector of this particle is  $\vec{r}(t)$ . We know that  $\vec{v} = \vec{\omega} \times (\vec{r} - \vec{r}_a)$ . Derive the force acted on this particle. (3 pts)
2.  $M = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$ 
  - a).  $M = S + A$  where  $S$  is symmetric and  $A$  is anti-symmetric. Calculate  $SA$ . (3 pts)
  - b). Prove  $(SA)^T = -AS$  without calculating  $AS$ . (1 pt)
3. Who helped you most in this quiz? Your complaint on this course. (3 pts)