

Name: \_\_\_\_\_

Pid: \_\_\_\_\_

1. (10 points) Construct a bijection from  $\mathbb{N}$  to  $\mathbb{N} \times [3]$ .

2. (10 points) Show that  $\sum_{m=0}^n \binom{m}{k} = \binom{n+1}{k+1}$ .