

Hw 2 599  
Jayden Pothoof

### Written Answers

#### Prob 1

c) Looking at the plots, there is more difference within the signals for different T2 values at a flip angle of 180. At lower flip angles there is a larger difference in signals as T1 changes. This means that larger flip angles produce larger T2 contrast while smaller flip angles produce larger T1 contrast.

#### Prob 2

- a) T1 weighted images require short TR and TE times (TR: 500ms, TE: 15ms). T2 weighted images require long TR and TE times (TR: 6000ms, TE: 100ms). Proton density images require short TE and long TR times (TR: 4000ms, TE: 15ms).
- b) Total acquisition time =  $Tr \cdot Ny / ETL = 24s$ .
  - i) Blank
  - ii) Single spin echo time = 768s. Kspace was recorded by starting at the top of k space and working downward except for the echo taken at  $t=80ms$  (echo #16) was done at the center of kspace
  - iii) The kspace trajectories follow the same concept as the 80 ms echo time. Except using echo 8 for 40ms and echo 24 for 120ms at the center of kspace.
  - iv) Honestly, I did not do 2biv. Too much ISMRM and other classes overlapping deadlines, however, increased echo length results in shorter scan times but can cause blurring around edges and increased SNR as the signal decays