HW4

1. Following the approach we took in class, use the Central Slice Theorem to derive the formula for the filtered back-projection algorithm.

2. Use the `radon` and `iradon` functions to explore the dependence of number of projection angles on the reconstructions obtained in CT. This time, create a starting image by typing `object = phantom` in Matlab. If you display the image, you will see that it is a set of "blobs" meant roughly to approximate the cross-section of a human head. Generate projection data using `radon(object,dth:dth:180)`, where `dth` is the angle between successive projections. Show reconstructions obtained from 6, 18, 60, and 180 projections. Now using the projection data obtained from `object_radon = radon(object,1:1:180)`, show the effect of reducing the number of effective X-ray beams by a factor of ~10. Hint: use a subset of the rows in the `object_radon` matrix.