

Problem 1 (contaminated graphite, vary enrichment)

sigma gamma 235	98.81	sigma gamma 238	2.717	sigma gamma mod	0.0064
sigma elastic 235	15.04	sigma elastic 238	9.36	sigma elastic mod	4.746
sigma fission 235	584.4				
m	250				
f	0.0076				
equation 4	0.017694980079681				
equation 6	0.037803772111553				
equation 7	4.78224943426295				
n fuel	0.0479				
n mod	0.0803	n	0.080084184549534		
lambda capture	330.307249620739				
lambda transport	2.6110850475496				
			Trials for various f's:		
epsilon	0.9		0.0085 gives 206		
nu	2.4		0.0077 gives 406		
eta	1.01104082574951		0.0076 gives 507		
			0.0075 gives 758		
R	506.941714410345		0.0072 fails!		

Problem 2 (natural uranium, vary moderator contamination with absorber)

sigma gamma 235	98.81	sigma gamma 238	2.717	sigma gamma mod	0.010
sigma elastic 235	15.04	sigma elastic 238	9.36	sigma elastic mod	10.56
sigma fission 235	584.4				
m	50				
f	0.0072				
equation 4	0.082503529411764				
equation 6	0.159148031372549				
equation 7	10.619776				
n fuel	0.0479				
n mod	0.0334	n	0.033599431724592		
lambda capture	188.127490502175				
lambda transport	2.80254575353381				
			10 trials with various	sigma gamma mod	
epsilon	0.9		0.030 fails!	0.015 gives 140	
nu	2.4		0.029 gives 799	0.012 gives 127	
eta	1.11976015029835		0.028 gives 442	0.011 gives 124	
			0.026 gives 286	0.010 gives 120	
R	120.347082403257		0.020 gives 173	0.009 gives 117	

Problem 3 (heavy water, depleted uranium, compute critical radius)

sigma gamma 235	98.81	sigma gamma 238	2.717	sigma gamma mod	0.00129
sigma elastic 235	15.04	sigma elastic 238	9.36	sigma elastic mod	10.56
sigma fission 235	584.4				
m	55				
f	0.0050				
equation 4	0.0521785714285714				
equation 6	0.110543125				
equation 7	10.5912571428571				
n fuel	0.0479				
n mod	0.0334	n	0.033581528543048		
lambda capture	270.845606730215				
lambda transport	2.81159024280925				
epsilon	0.9				
nu	2.4				
eta	1.0195633087604				
R	357.853279971435		R is about 360cm		