1. Let X_1, X_2, X_3 be independent identically distrubuted normal $N(0, 6)$ random variables. Find c such that
$$P\{X_1^2 + X_2^2 + X_3^2 \leq c\} = .95$$
using one of the enclosed tables.

TABLE 5

Cumulative distribution function $H(c; \nu)$ of the chi-square distribution with ν degrees of freedom

$$H(c; \nu) = \int_0^c h(y; \nu)\, dy$$

						ν						
c	1	2	3	4	5	6	7	8	9	10	11	12
0.001	0.025											
0.002	0.036	0.001										
0.004	0.050	0.002										
0.006	0.062	0.003										
0.01	0.080	0.005										
0.02	0.112	0.010	0.001									
0.06	0.194	0.030	0.004									
0.10	0.248	0.049	0.008	0.001								
0.20	0.345	0.095	0.022	0.005	0.001							
0.60	0.561	0.259	0.104	0.037	0.012	0.004	0.001					
1.0	0.683	0.393	0.199	0.090	0.037	0.014	0.002	0.001				
1.4	0.763	0.503	0.294	0.156	0.076	0.034	0.014	0.006	0.002	0.001		
1.8	0.820	0.593	0.385	0.229	0.124	0.063	0.030	0.013	0.006	0.002	0.001	
2.2	0.862	0.667	0.468	0.301	0.179	0.100	0.052	0.026	0.012	0.005	0.002	0.001
2.6	0.893	0.727	0.543	0.373	0.239	0.143	0.081	0.043	0.022	0.011	0.005	0.002
3.0	0.917	0.777	0.608	0.442	0.300	0.191	0.115	0.066	0.036	0.019	0.009	0.004
3.4	0.935	0.817	0.666	0.507	0.361	0.243	0.154	0.093	0.054	0.030	0.016	0.008
3.8	0.949	0.850	0.716	0.566	0.421	0.296	0.198	0.125	0.076	0.044	0.025	0.013
4.2	0.960	0.878	0.759	0.620	0.479	0.350	0.244	0.161	0.102	0.062	0.036	0.020
4.6	0.968	0.900	0.796	0.669	0.533	0.404	0.291	0.201	0.132	0.084	0.051	0.030
5.0	0.975	0.918	0.828	0.713	0.584	0.456	0.340	0.242	0.166	0.109	0.069	0.042
5.4	0.980	0.933	0.855	0.751	0.631	0.506	0.389	0.286	0.202	0.137	0.090	0.057
5.8	0.984	0.945	0.878	0.785	0.674	0.554	0.437	0.330	0.240	0.168	0.114	0.074
6.2	0.987	0.955	0.898	0.815	0.713	0.599	0.483	0.375	0.280	0.202	0.140	0.094
6.6	0.990	0.963	0.914	0.841	0.748	0.641	0.528	0.420	0.321	0.237	0.170	0.117
7.0	0.992	0.970	0.928	0.864	0.779	0.679	0.571	0.463	0.362	0.275	0.201	0.142
7.4	0.994	0.975	0.940	0.884	0.807	0.715	0.612	0.506	0.404	0.313	0.234	0.170
7.8	0.995	0.980	0.950	0.901	0.832	0.747	0.649	0.547	0.446	0.352	0.269	0.199
8.2	0.996	0.983	0.958	0.915	0.854	0.776	0.685	0.586	0.486	0.391	0.305	0.231
8.6	0.997	0.986	0.965	0.928	0.874	0.803	0.717	0.623	0.525	0.430	0.341	0.263
9.0	0.997	0.989	0.971	0.939	0.891	0.826	0.747	0.658	0.563	0.468	0.378	0.297
10.0	0.998	0.993	0.981	0.960	0.925	0.875	0.811	0.735	0.650	0.560	0.470	0.384
11.0	0.999	0.996	0.988	0.973	0.949	0.912	0.861	0.798	0.724	0.642	0.557	0.471
12.0	0.999	0.998	0.993	0.983	0.965	0.938	0.899	0.849	0.787	0.715	0.636	0.554
13.0		0.998	0.995	0.989	0.977	0.957	0.928	0.888	0.837	0.776	0.707	0.631
14.0		0.999	0.997	0.993	0.984	0.970	0.949	0.918	0.878	0.827	0.767	0.699
15.0		0.999	0.998	0.995	0.990	0.980	0.964	0.941	0.909	0.868	0.818	0.759
16.0			0.999	0.997	0.993	0.986	0.975	0.958	0.933	0.900	0.859	0.809
17.0			0.999	0.998	0.996	0.991	0.983	0.970	0.951	0.926	0.892	0.850
18.0				0.999	0.997	0.994	0.988	0.979	0.965	0.945	0.918	0.884
19.0				0.999	0.998	0.996	0.992	0.985	0.975	0.960	0.939	0.911
20.0				0.999	0.999	0.997	0.994	0.990	0.982	0.971	0.955	0.933
25.0							0.999	0.998	0.997	0.995	0.991	0.985
30.0										0.999	0.998	0.997