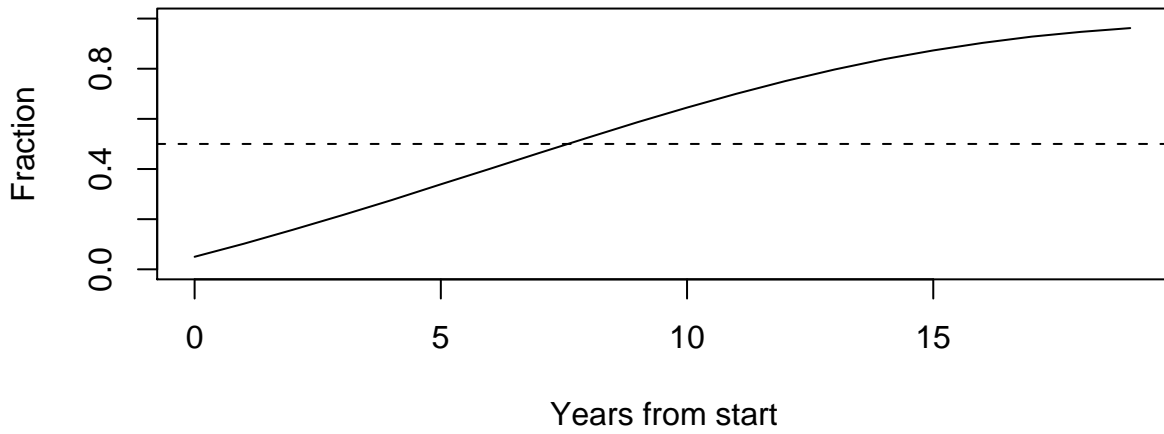


# The Annuity Problem, Stat 1001, April 1, 2009

Rate:	0.04	Payout		0.08			
year	Amount at start of year	interest earned	Payment to donor	Amount at end of year	Fraction alive at start of year dead at end	Prob(die this year given alive at the beginning of the year)	Cumulative fraction dead
0	\$500,000	\$0	\$0	\$500,000	0.050	0.050	0.050
1	\$500,000	\$20,000	\$40,000	\$480,000	0.055	0.05225	0.102
2	\$480,000	\$19,200	\$40,000	\$459,200	0.062	0.0556605	0.158
3	\$459,200	\$18,368	\$40,000	\$437,568	0.069	0.0581042	0.216
4	\$437,568	\$17,503	\$40,000	\$415,071	0.077	0.0603669	0.276
5	\$415,071	\$16,603	\$40,000	\$391,674	0.086	0.0622312	0.339
6	\$391,674	\$15,667	\$40,000	\$367,340	0.095	0.0628318	0.401
7	\$367,340	\$14,694	\$40,000	\$342,034	0.104	0.0622498	0.464
8	\$342,034	\$13,681	\$40,000	\$315,715	0.116	0.0622115	0.526
9	\$315,715	\$12,629	\$40,000	\$288,344	0.128	0.0606841	0.587
10	\$288,344	\$11,534	\$40,000	\$259,878	0.141	0.0582908	0.645
11	\$259,878	\$10,395	\$40,000	\$230,273	0.155	0.0550435	0.700
12	\$230,273	\$9,211	\$40,000	\$199,484	0.170	0.0510129	0.751
13	\$199,484	\$7,979	\$40,000	\$167,463	0.185	0.0460766	0.797
14	\$167,463	\$6,699	\$40,000	\$134,162	0.201	0.0408002	0.838
15	\$134,162	\$5,366	\$40,000	\$99,528	0.218	0.0353566	0.873
16	\$99,528	\$3,981	\$40,000	\$63,509	0.235	0.0298049	0.903
17	\$63,509	\$2,540	\$40,000	\$26,050	0.253	0.0245472	0.928
18	\$26,050	\$1,042	\$40,000	-\$12,908	0.270	0.0195689	0.947
19	-\$12,908	\$0	\$40,000	-\$52,908	0.288	0.0152376	0.962

Column F comes from National Center for Health Statistics 1996 Life Table for US Females

### Fraction dead



### Capital remaining

