Homework #4

- 1. a) P = 18,000 + 900xb) $P_0 = 18,000 P_n = 900 + P_{n-1}$ c) 18,000 + 900 * 4.5 = 22,050 36,000 = 18,000 + 900x 18,000 = 900xx = 20 years
- 2. a) S = 40 1.1d b) $S_0 = 40$ $S_n = S_{n-1} 1.1$ c) 0 = 40 - 1.1d 1.1d = 40 d = 36.4 inches
- 3. a) V = 1200 75x b) $V_0 = 1200$ $V_n = V_{n-1} 75$ c) 0 = 1200 - 75x 75x = 1200 x = 16 years
- 4. The dog gains 12.5 pounds/year. W = 2.5 + 12.5x. The weight after 5 years is 65 lbs and after 10 years is 127.5 lbs. This dog does probably not continue to gain 12.5 pounds per year. It grows quickest the first years of its life.
- 5. (\$, # gold) Two points on the line will be (2,80) and (5,50) $\frac{50-80}{5-2} = -10$ \$/year # sold= 100-10p or in recursive form $N_n = N_{n-1} 10$ $N_0 = 90$







8.

	A	D	C		υ	E	F	0	п	1	J
1	Year	Number of Collisions in thousands			6						
2	1992	4.9		Su	°						
3	1995	4.6			5 +	*					
4	2000	3.5		(ş)							
5	2005	3.1		ofo	3 +		• `	-			
6	2010	2.1		lo a	2	y = -0.1311x	(+266.02		*		
7	2014	2.3		Ē	2 T						
8				z	1 +						
9					o +		1	1	1	· · · · ·	
10					199	90 1995	2000	2005	2010 20	015 2020	
11			L								

c. For 2012 you can use interpolation because 2012 is within the data (it is between 1992 and 2014). # collisions = $-.1311 * 2012 + 266.02 \approx 2.25$ thousand collisions

d. Solving 1 = -0.1311x + 266.02 we get find the middle of year 2021. This seems reasonable. e. Solving 0 = -0.1311x + 266.02 we find there will be no collisions in the year 2029. This may or may not be reasonable to extrapolate this far out. Lots of things can happen. It seems doubtful there won't be any collisions but perhaps self-driving car technology could drastically reduce this number.