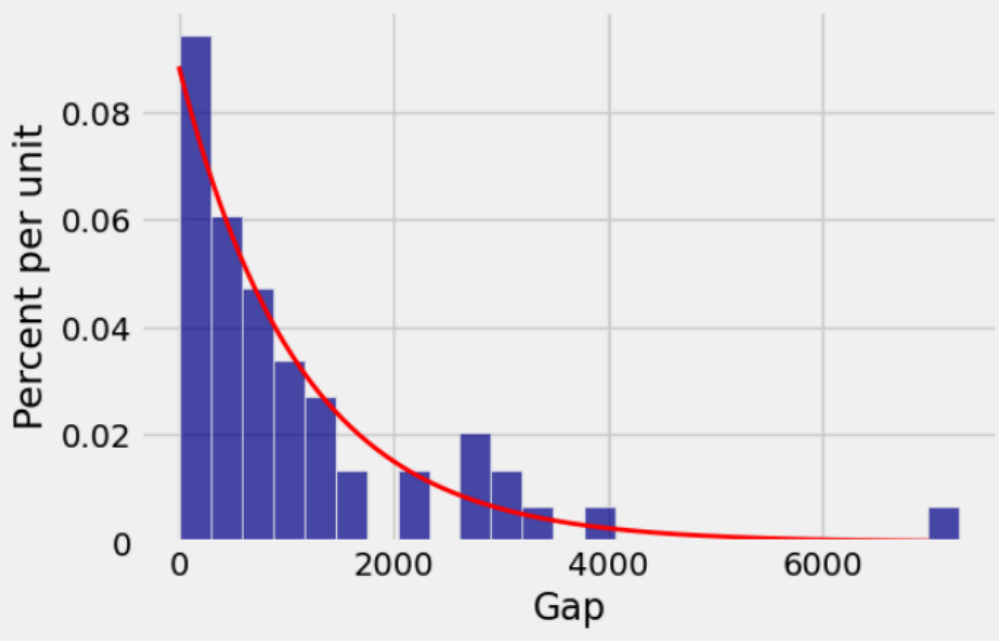
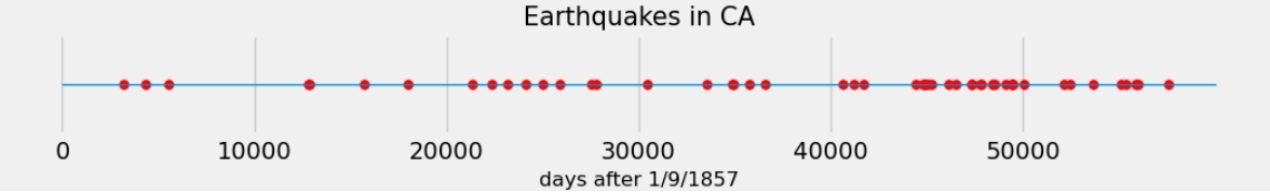
Date	Name	Area	Magnitude	MMI	Days from 1/9/1857	Gap
8/24/2014	South Napa	North Bay	6	8	57570	1603
4/4/2010	Baja California	Baja California	7.2	7	55967	85
1/9/2010	Eureka	North Coast	6.5	6	55882	529
7/29/2008	Chino Hills	LA Area	5.5	6	55353	273
10/30/2007	Alum Rock	South Bay	5.6	6	55080	1408
12/22/2003	San Simeon	Central Coast	6.6	8	53672	1205
9/3/2000	Yountville	North Bay	5	7	52467	323
10/16/1999	Hector Mine	Eastern	7.1	7	52144	2098
1/17/1994	Northridge	LA Area	6.7	9	50046	568
6/28/1992	Landers	Inland Empire	7.3	9	49478	64
4/25/1992	Cape Mendocino	North Coast	7.2	9	49414	3
4/22/1992	Joshua Tree	Inland Empire	6.3	7	49411	299
6/28/1991	Sierra Madre	LA Area	5.6	7	49112	619





d) Predicting A Big One

Under the same assumptions as in Part **c**, find the number of years n such that there is 99% chance that within n years from now there will be at least one quake of magnitude at least 6.0. It's fine if n is not an integer.

```
# 1 - P(0 eq in rate n*lambda*prop_big*365) = 1-e^(-365*n*lam*prop_big), set equal to 0.99.
#set 0.99 = e^(-365*n*lam*prop_big), take log of both sides, and solve for n.
n = np.log(0.01)/(-365*prop_big*lam)
n
```

```
19.631221592546048
```