Homework Set 4a

1. In a hypothetical seismically active region, earthquakes have been recorded over an 80-year period. Part of the record is instrumental, but part is not. Combining all available data, it appears that earthquakes have been distributed as follows:

|  |  |
| --- | --- |
| Moment Magnitude | Number of Earthquakes |
| 3-4 | 1800 |
| 4-5 | 150 |
| 5-6 | 11 |
| >6 | 1 |

1. Estimate the Gutenberg-Richter parameter for the region.
2. Neglecting earthquakes of magnitude less than 3, compute the probability that an earthquake in the region will have a moment magnitude between 5.5 and 6.5
3. Repeat Part (b) assuming that paleoseismic evidence indicates that the region is not capable of producing earthquakes of moment magnitude greater than 6.5.