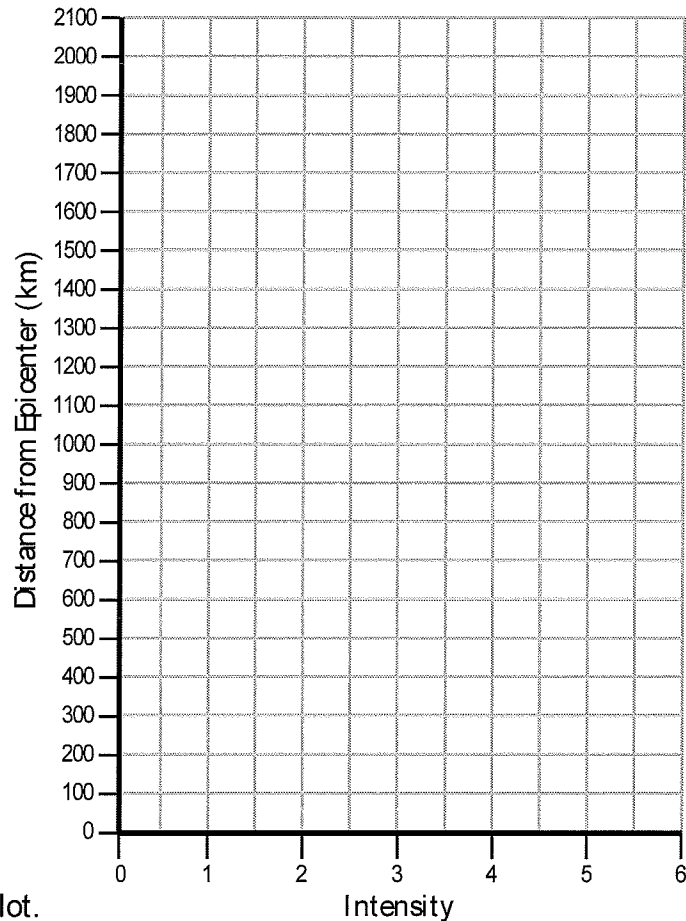


Shake It Up with Scatterplots

NAME _____ DATE _____

Actuaries use information about the magnitude and severity of earthquakes in a particular geographic area to help insurance companies determine how to serve their customers. The magnitude describes the size of the earthquake at the source. The table on the left below describes the earthquake's intensity—the effects of the earth's shaking—at different locations away from Parkfield, California, a town famous for its seismic activity. Read the table, then answer the questions below.

| Date of Earthquake: Sept. 28, 2004 Epicenter: 9 Miles South of Parkfield, CA Magnitude at Source: 6.0* | | |
|--|------------------------------|-------------|
| Town | Distance from Epicenter (km) | Intensity** |
| Armona, CA | 89 | IV |
| Avenal, CA | 35 | V |
| Boise, ID | 934 | I |
| Coalinga, CA | 47 | V |
| Denver, CO | 1,431 | I |
| Fellows, CA | 99 | IV |
| Henderson, NV | 497 | II |
| Hutchinson, KS | 2,019 | I |
| Las Vegas, NV | 482 | III |
| Litchfield Park, AZ | 778 | III |
| Pahrump, NV | 401 | III |
| Rancho Palos Verdes, CA | 294 | IV |
| Salt Lake City, UT | 930 | II |
| Sevier, UT | 781 | II |
| Strathmore, CA | 129 | V |



Questions:

- Plot the information given above as a scatterplot.
- Use a ruler and mark the "line of best fit" for the scatterplot you have created.
- What relationship do you notice based on the information plotted here? Is the relationship weak or strong? _____
- Do you think it would cost more or less to insure customers in the Parkfield region against earthquake damage than it would customers in places where there are no recorded earthquakes? Why?

* Magnitude is measured by the Richter Scale, and is determined by seismographs.
** Intensity is measured by the Modified Mercalli Intensity Scale, and is based on effects on people, structures, and the natural environment.