STEM-ersion

Name _____

Date _____

w/ Logarithmic Equations

Seismologist

Ernest has been watching an earthquake building near Irvine, California. Earthquakes that measure more than 5 on the Richter Scale are considered to be destructive. With each point increase on the Richter Scale, the damage becomes ten times worse. Ernest has the following readings and populations of the four areas of the city, which are to be the hardest hit. He needs to find the magnitude of the earthquake at each location and recommend to the fire department which area they should prepare to visit first.

He uses the formula: $M = \log\left(\frac{i}{s}\right) + 5$ where *i* is the intensity, *s* is the standard earthquake and *m* is magnitude. In his model, the standard earthquake is 10 microns.

Area	A	B	C	D
Intensity (in microns)	34.58	58.2	25.8	100
Population	32,000	20,050	23,650	19,450
Affected Area	Upper End Residential	Commercial and Residential	Inner City Residential	High Rise Office Buildings

Evidence

Use this space to make any calculations and show work.

Analysis of the evidence

Interpret the Evidence. What does it mean?

Conclusion or Recommendation

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