

Using a travel-time graph

- Use Figure 2 to determine the difference in arrival times (in minutes) between the first P-wave and first S-wave for stations that are the following distances from an epicenter.

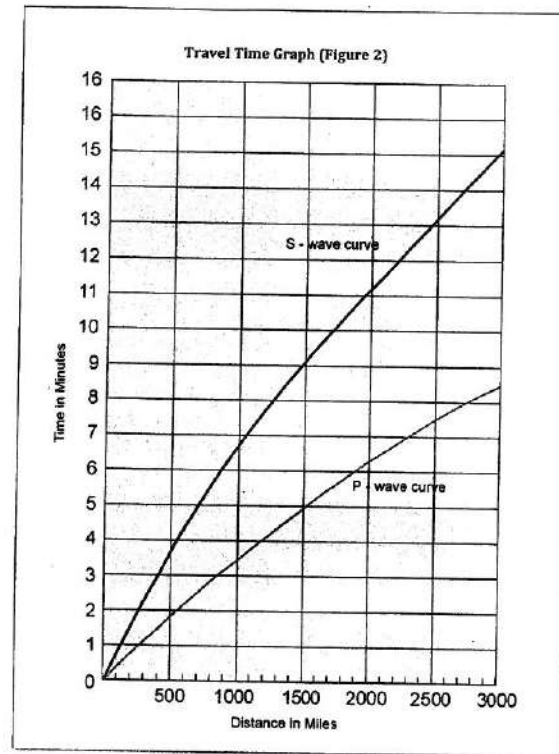
700 miles: _____ minutes difference

450 miles: _____ minutes difference

2500 miles: _____ minutes difference

- From the seismogram in Figure 1, the differences in arrival times between the first P-wave and the first S-waves equal (3, 7, 10) minutes. Circle your answer:

- Refer to the travel-time graph. What is the distance from the epicenter to the station that recorded the earthquake in Figure 1?
_____ miles



Directions:

Figure 3 illustrates seismograms from the same earthquake recorded at Los Angeles, CA, St. Louis, MO and Houston, TX. Use this information to answer the following questions.

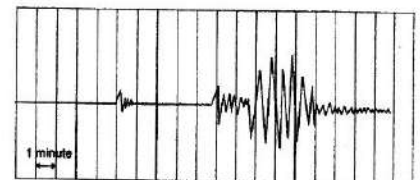
- Use the travel-time graph, Figure 2, to determine the distance that each station in Figure 3 is from the epicenter. Write your answers in the epicenter data table, Table 1.
- After you have determined the distance that each station is from the epicenter, use the drawing compass provided to draw a circle around each of the three stations with a radius, in miles, equal to its distance from the epicenter. Use the map of the United States.

(Note: Use the distance scale provided on the map to set the distance on the drawing compass for each station.)

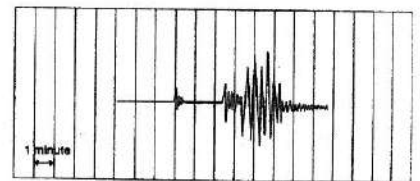
Table 1: Epicenter data table

	Los Angeles, CA	St. Louis, MO	Houston, TX
Elapsed time between first P and S waves (minutes)			
Distance from epicenter in miles			

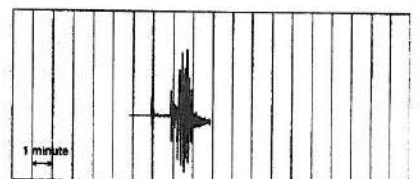
Figure 3.
(Earlier) (Later)



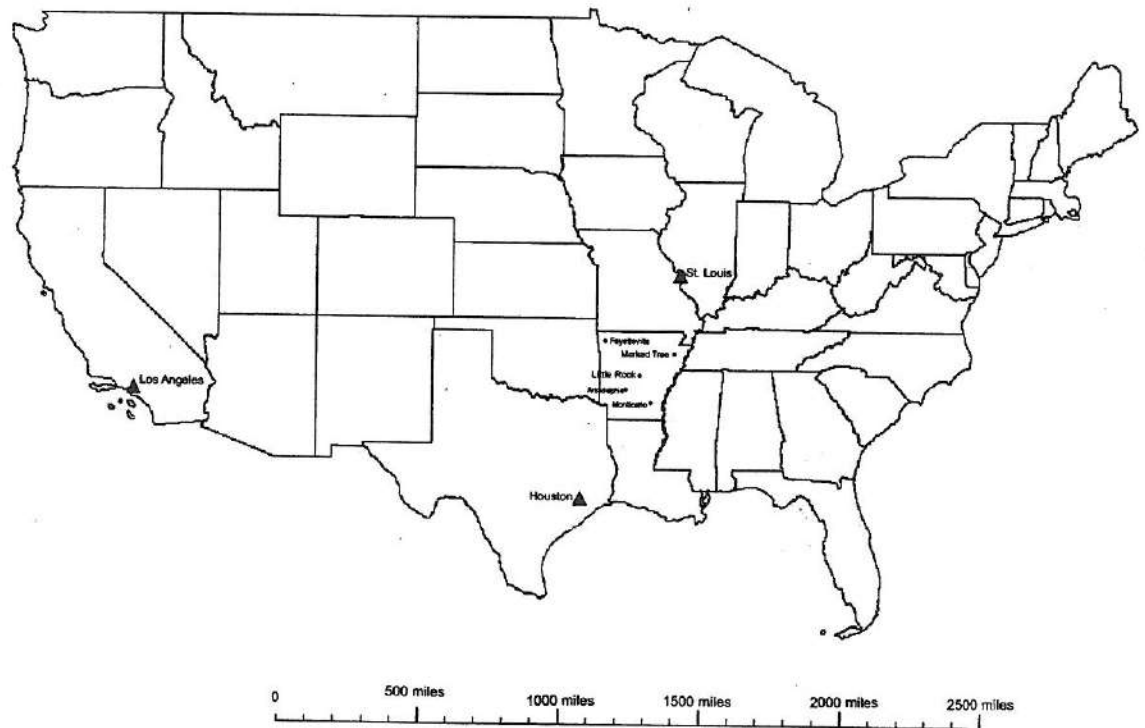
Station c: Los Angeles, California



Station b: Houston, Texas



Station a: St. Louis, Missouri



Determining an Earthquake Epicenter

1. Did all three of the circles drawn with the compass overlap in one spot?
2. This earthquake occurred closest to which city, in which state?

Brainstorming:

Assume that the same earthquake occurred, but the seismic station in Los Angeles malfunctioned, and did not record the earthquake. With only the information from seismic stations in St. Louis and Houston, brainstorm how a geologist might determine the location of the earthquake epicenter?