Name Period Date

Unit	Handout	
3	73	*Lesson 3: Locating the Epicenter of an Earthquake*

Purpose:	To learn the process of finding an earthquake's epicenter.
Guiding Questions:	**-** What is an epicenter? **-** How is the epicenter of an earthquake determined?

Instructions. Follow the instructions on pages 40-44 of your XPT book.

Use Figure 3.7 on page 41 to help you answer the following questions.

3a. If it took four minutes for the first P-wave to arrive at the seismograph station, how far away is the earthquake's epicenter?

3b. If the seismograph station were located 2500km from the earthquake's epicenter, how long would it take the P-wave to arrive?

3c. How long would it take the S-wave to travel 2500km and reach the seismograph station?

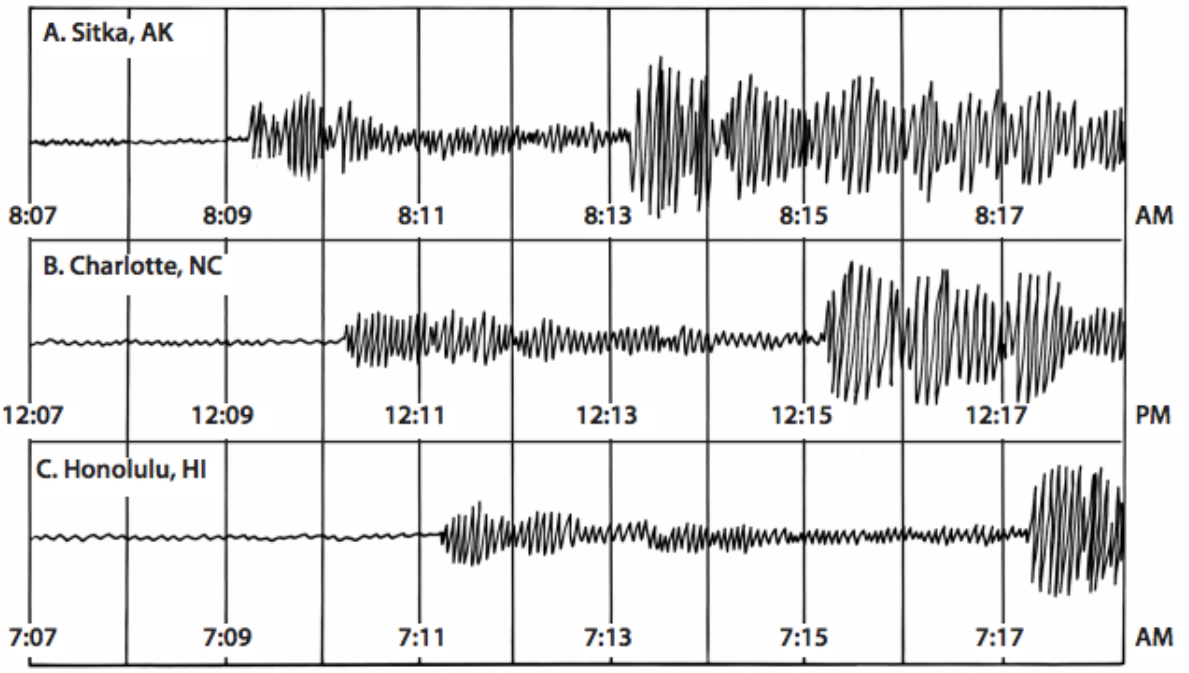
3d. Using 2500km, which wave traveled faster: the P-wave or the S-wave?

3e. At 2500km, how many minutes elapsed between the time the P-wave and S-wave arrived at the station?

3f. Considering the whole graph, how does minutes elapsed between the P-wave and S-wave arrival relate to the distance from the earthquake's epicenter?

Use the following seismograms to help you answer questions 7a-e.

Figure 1 Seismogram records for three stations.



For each station above, record the arrival time for the primary wave (P-wave) and the secondary wave (S-wave) on Table 1. Sitka, Alaska, has been done for you. Then, calculate the lag time (S-P interval) and determine the distance to the epicenter. Use step 8 to help you determine the distance to the epicenter.

Table 1 Earthquake Data

Seismograph Station	Time of Arrival at Station		S-wave minus P-wave	Distance to the Epicenter (km)
	Primary Wave (P-wave)	Secondary Wave (S-wave)		
A. Sitka, AK	8:09	8:13		
B. Charlotte, NC				
C. Honolulu, HI				

Follow procedure step 10 of Inquiry 3.3 (p. 10) and use the map below to locate and mark the earthquake's epicenter.