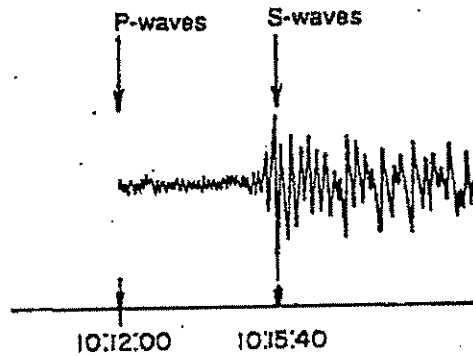


Name _____ Date _____ Per. _____

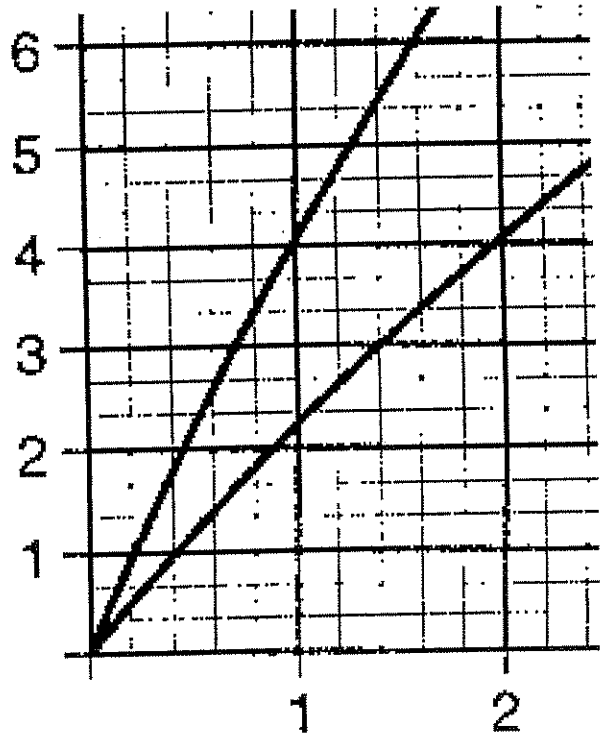
Activity: Determining Epicenter Distance

Directions: Use the sample seismograph data below to determine the distance to the earthquake.

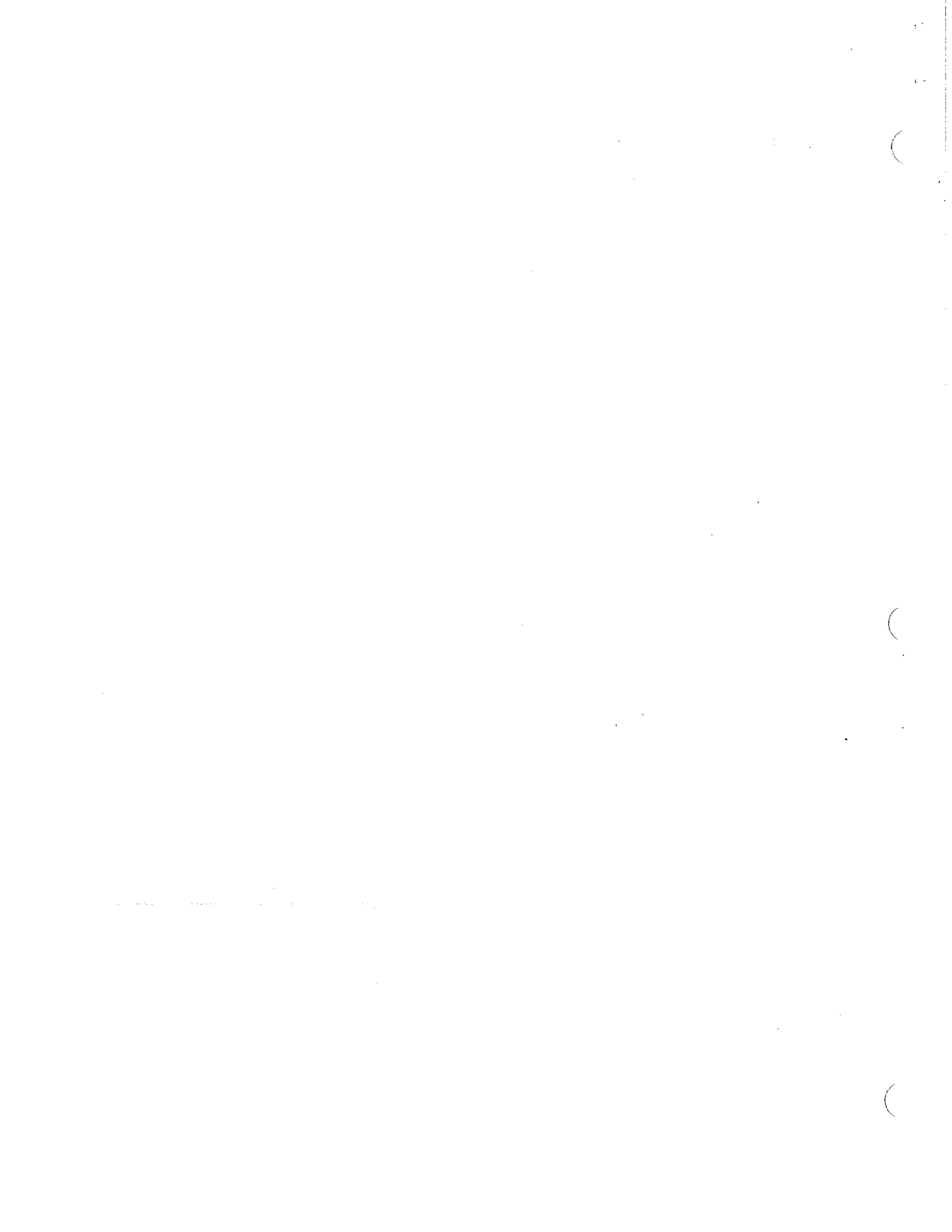


1. Determine the arrival time of the S-wave: _____
2. Determine the arrival time of the P-wave: _____
3. Subtract the two arrival times to determine the difference in arrival times: _____

4. On a piece of scrap paper, mark the difference in arrival times using the vertical axis on the graph to the right. (This is a small part of the chart on p. 11 of the Earth Science Reference Tables).
5. Place one mark on your scrap paper on the P-wave line. Keeping the scrap paper vertical, slide the scrap paper up along the P-wave line until the second mark on the scrap paper matches up with the S-wave line.
6. Follow the edge of the scrap paper down to the horizontal (distance) scale to determine the distance to the epicenter.



Epicenter Distance: _____

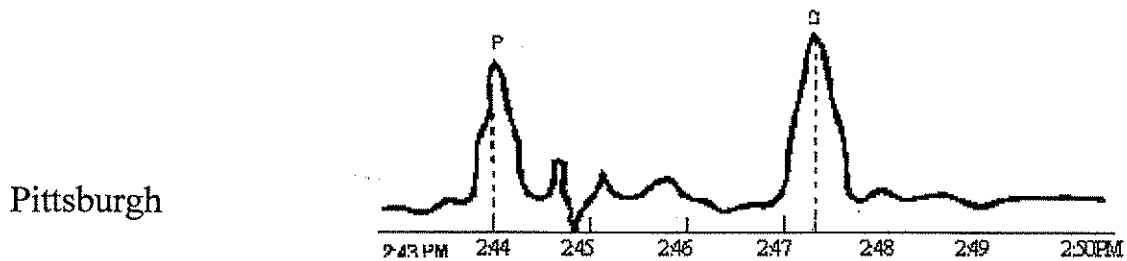
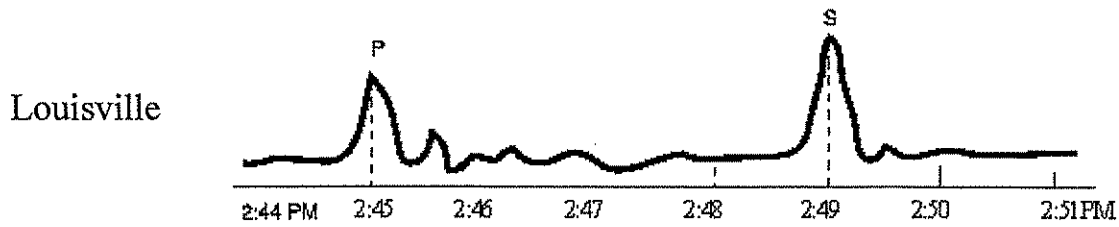
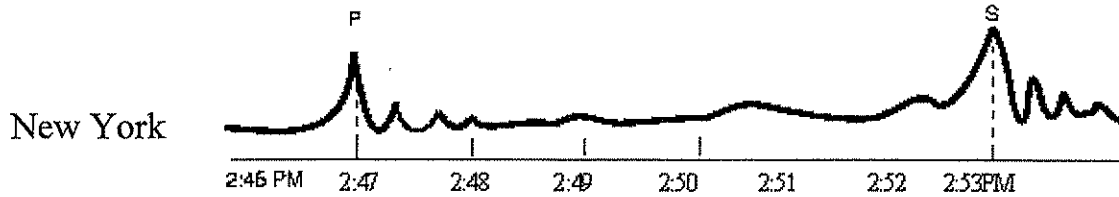


Name: _____

Period: _____

Fill in the data chart with the information from the seismograms.

Times shown are hours and minutes. Seconds are not shown.



Seismograph Station	Arrival (clock time)		Difference in arrival time (min & sec)	Distance to epicenter
	"P" wave	"S" wave		
New York				
Louisville				
Pittsburgh				



Name:

Epicenter Location

Complete the chart below using your knowledge of Earth Science and your Handy Dandy Earth Science Reference Tables. Please note that stations A, B, and C are picking up a different earthquake than stations 1, 2, and 3.

seismograph station	Arrival (clock time)		Difference in arrival time min. & sec.	Distance to epicenter (km)	"P" Wave travel time min. & sec.	Time of origin hr, min, & sec
	"P" Wave	"S" Wave				
A	5:33:40	5:36:40				
B	5:40:25	5:48:45				
C	5:37:30	5:43:30				
1	10:23:35	10:30:35				
2	10:23:20	10:30:00				
3	10:18:15	10:20:55				

According to your Handy Dandy Earth Science Reference Tables, what is the difference in arrival times of P-waves & S-waves at a seismic station 6,200km away from the epicenter of an earthquake?

If the earthquake occurs at 9:20 am, what time will a seismic station 2,600km away pick up the P-wave?

What time will it pick up the S-wave?



Name:

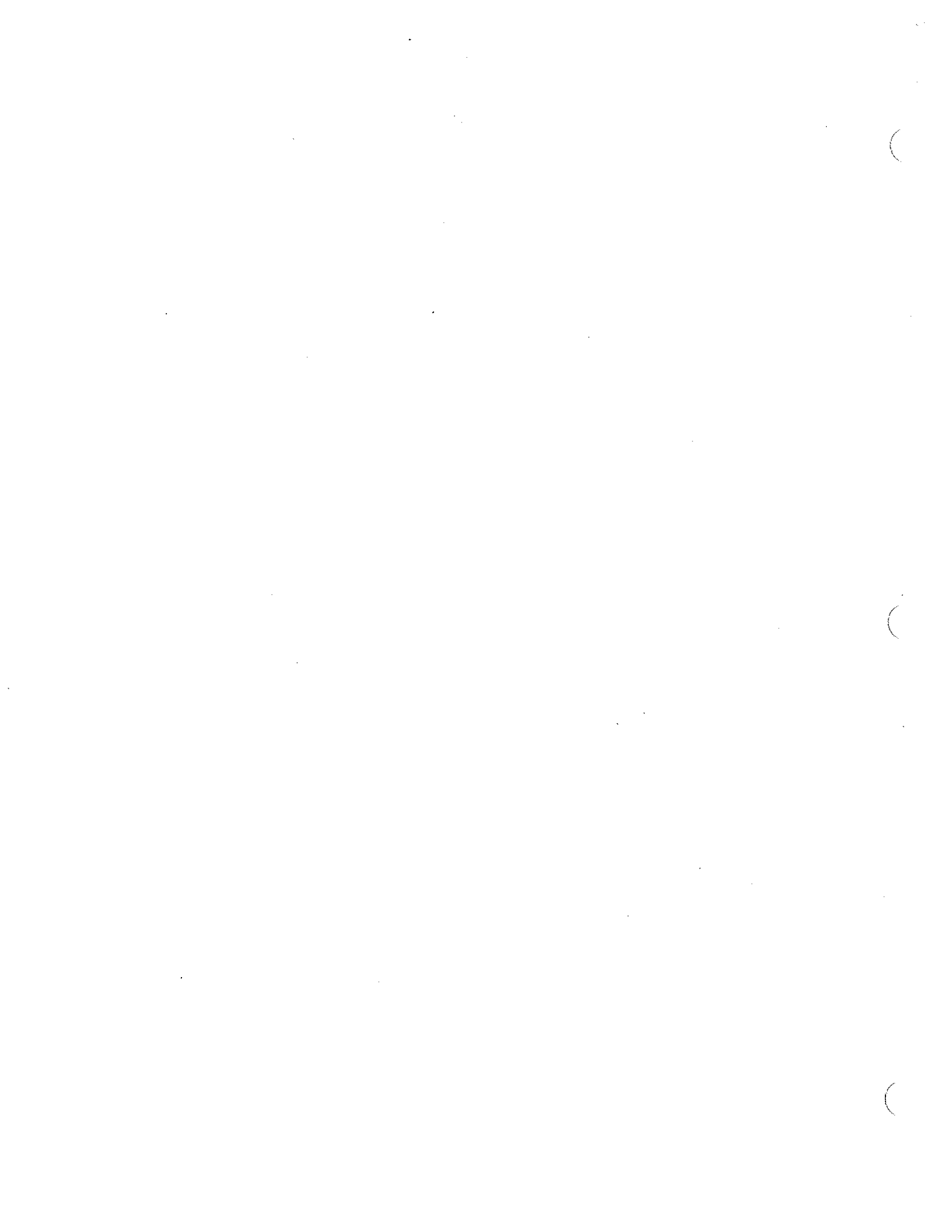
Finding Epicenters II

Complete the chart below. Note that the top three rows are from one earthquake event (so the time of origins should all be the same or very close) and the bottom three rows are a completely different earthquake. You will need your *Handy Dandy Earth Science Reference Tables* to complete this worksheet.

seismograph station	Arrival (clock time)		Difference in arrival time min. & sec.	Distance to epicenter (km)	"P" Wave travel time min. & sec.	Time of origin hr, min, & sec
	"P" Wave	"S" Wave				
San Jose	2:05:25	2:08:00				
New York	2:13:15	2:22:20				
San Francisco	2:08:15	2:13:05				
San Jose	1:19:20	1:22:40				
New York	1:21:15	1:25:30				
San Francisco	1:20:35	1:25:05				

List as many features of the P-wave as you can.

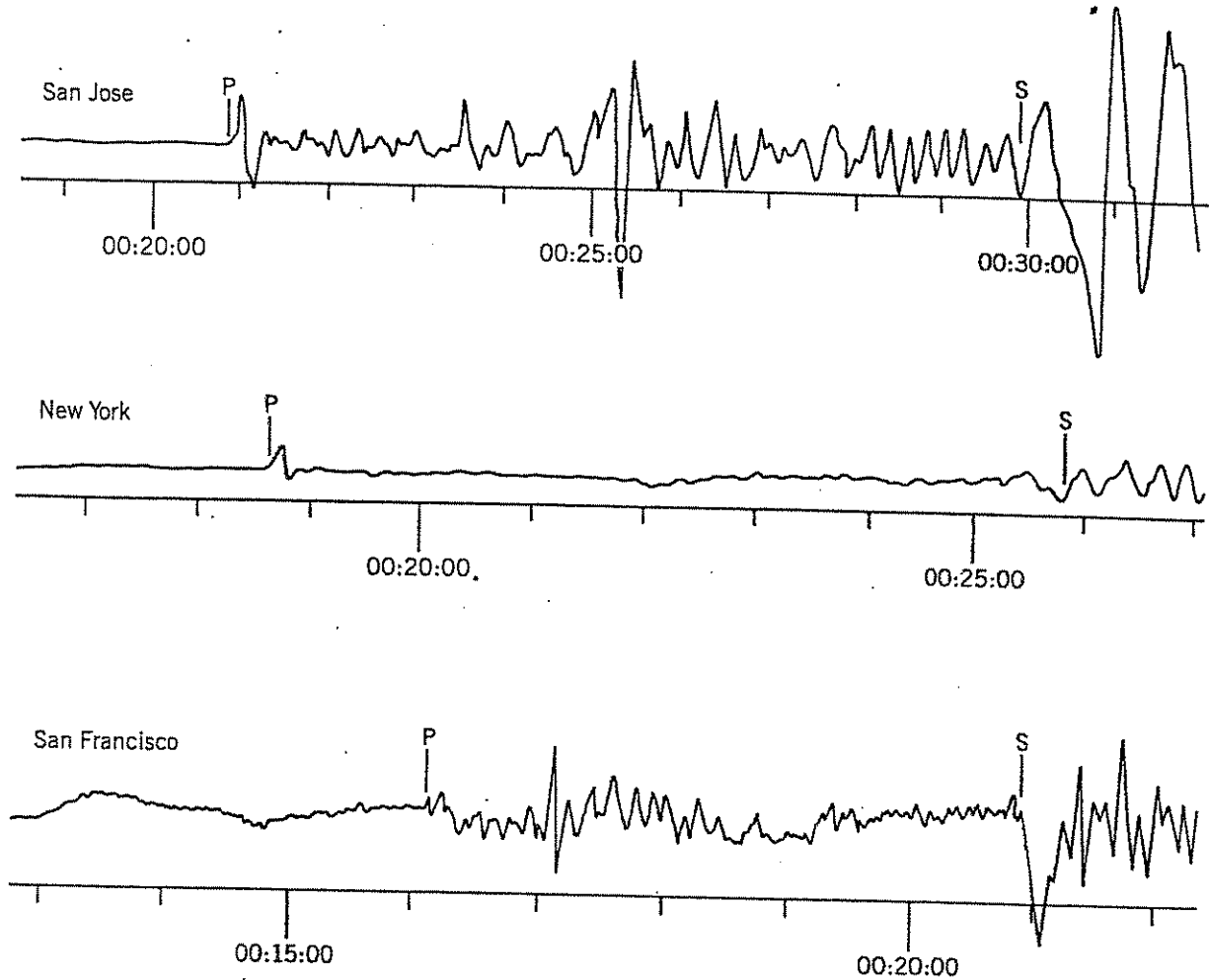
List as many features of the S-wave as you can.



NAME _____

EPICENTER LOCATION PRACTICE II

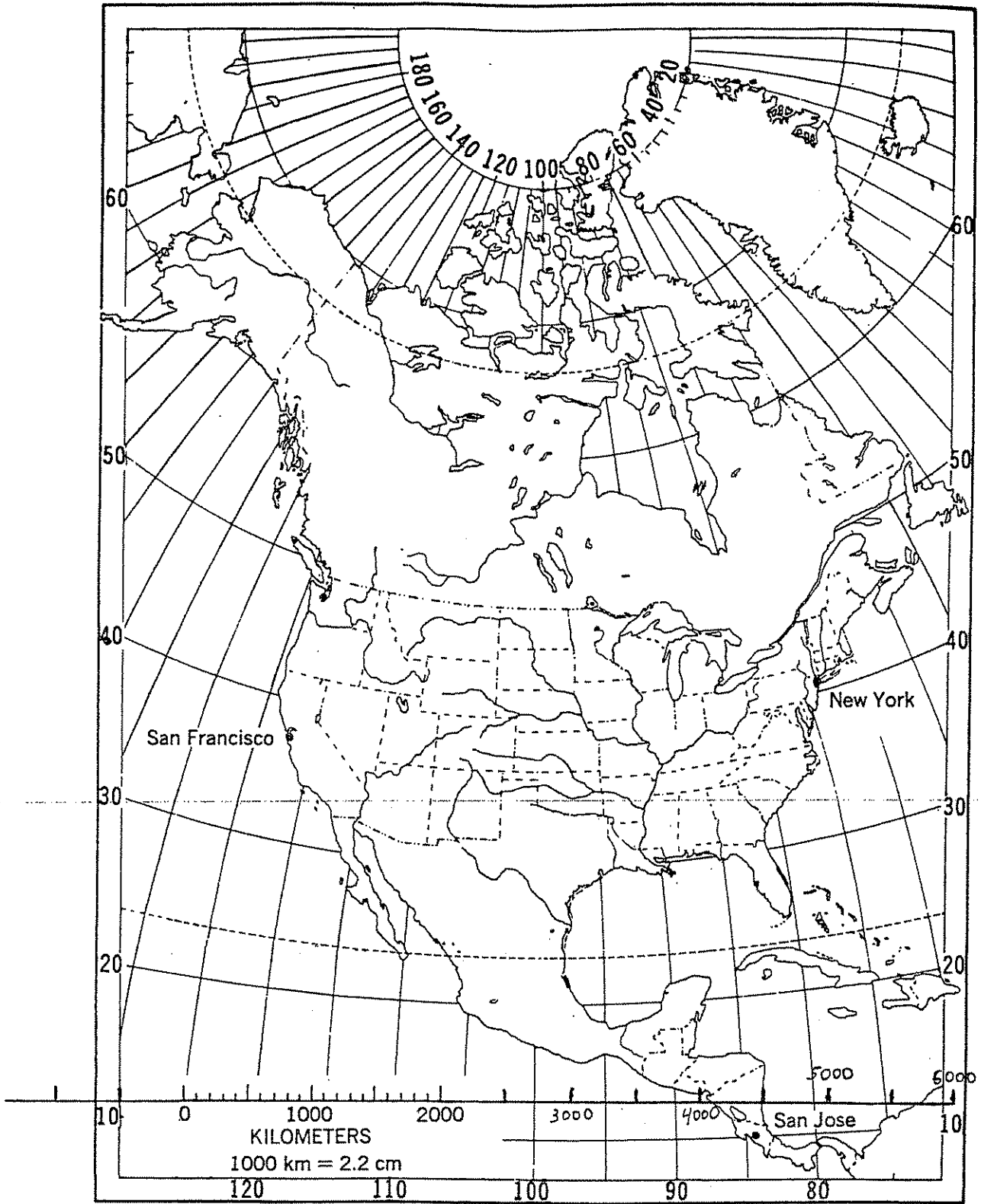
PARTIAL SEISMOGRAM RECORDS SHOWING THE SAME EARTHQUAKE AS RECORDED AT THREE DISTANT CITIES



NOTE: Times are Greenwich Mean Time in the 24-hour system. Time scales for the three cities are not the same.

DATA TABLE

Station	Arrival (clock time)		Difference ($S_a - P_a$)	Distance (km)	P travel time (P_t)	Origin time ($P_a - P_t$)
	P waves (P_a)	S waves (S_a)				
San Jose						
New York						
San Francisco						



SUMMING UP

1. Earthquake A: Latitude Longitude Origin time
Country (or state)