

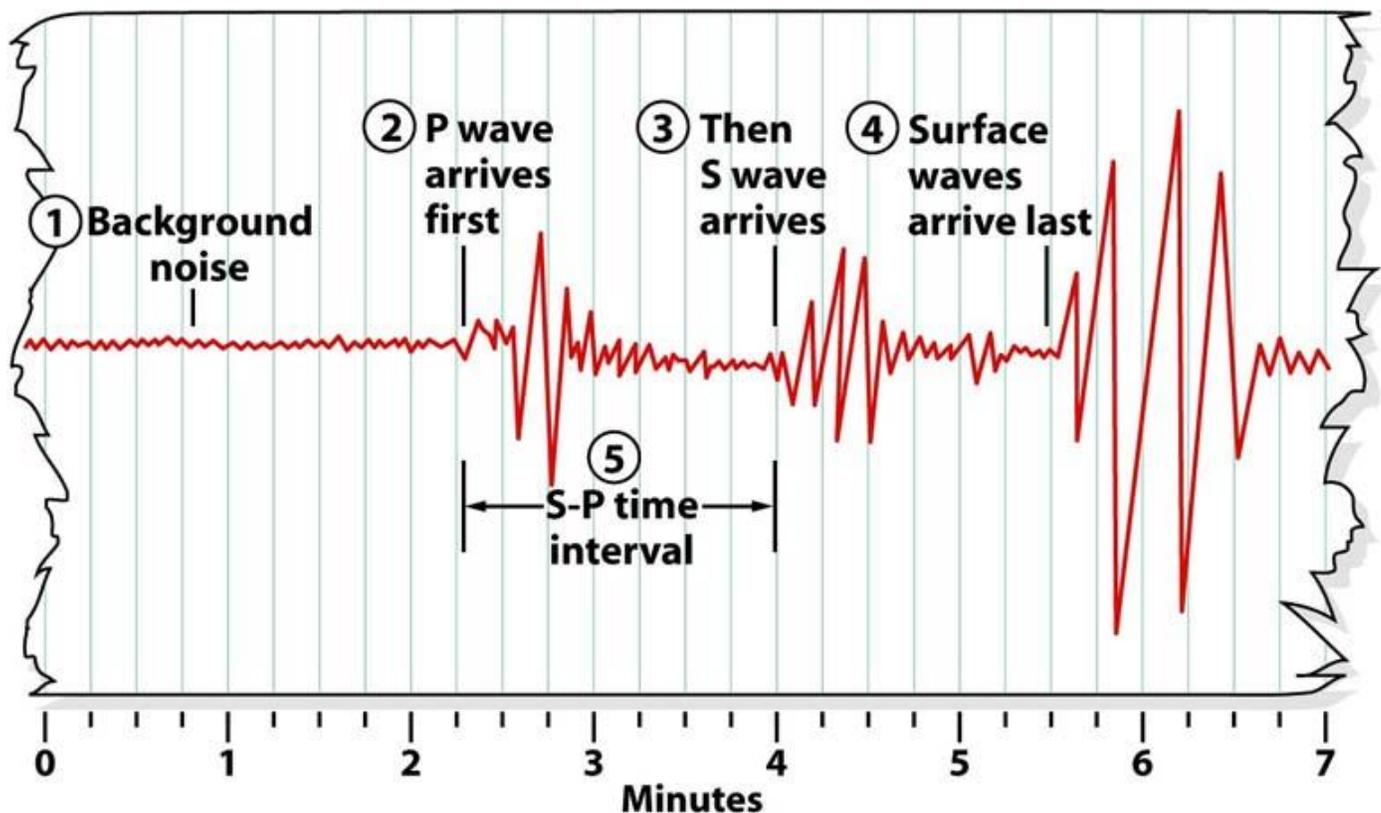
## Answers to “How Do Scientists Locate the Epicenter of an Earthquake”

1-6 answers---See other handwritten sheet.

7. Seismograph (also called a seismometer) is a machine which collects the waves and graphs them. A seismogram is the paper with the actual seismic wave data on it.

8.

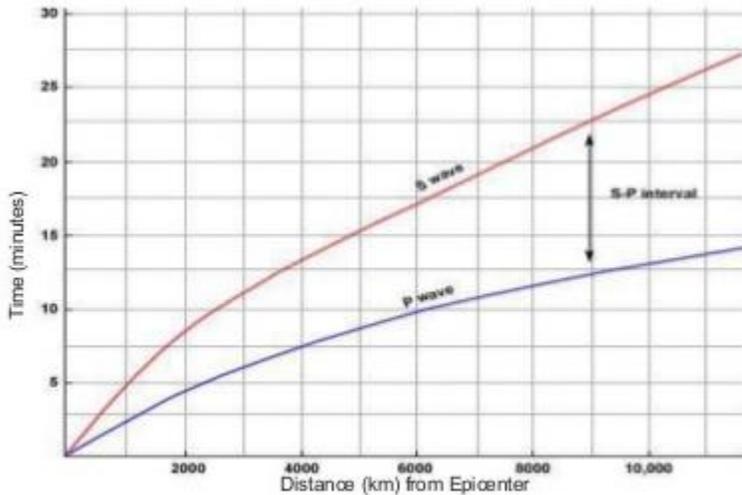
- ① The earthquake happens at time 0.      ② The first P waves arrive a little over 2 minutes later.      ③ The first S waves arrive 4 minutes later.



- ④ The surface waves, which travel the long way around Earth's surface, arrive last.      ⑤ The S-P interval, here slightly less than 2 minutes, tells the seismologist how far away the earthquake was.

9. Lag time is the time that lapses from when the P wave arrives and the secondary arrives. P waves travel 1.7 times faster than S waves.

10. You determine the distance the station is from the earthquake by first calculating the lag time. Once you have the lag time, use the wedge method on a time/distance graph to determine the distance the epicenter is from the station.



11. Three seismic stations are needed in order to determine the epicenter of an earthquake.

12. Steps needed to locate the earthquake's epicenter:

- A. Obtain at least three seismograms with data.
- B. Figure out the lag time for each seismic station.
- C. Use the Wedge Method to find out the distance the earthquake epicenter was from the seismic station.
- D. Draw the circles around each station with the appropriate distance from the station to the epicenter.
- E. Find the point where all three circles intersect. This will be your epicenter!

13. The method for finding the epicenter is called the triangulation method because you need three stations and

three circles. A triangle has three sides. Also, if you connected the three stations with lines, it would form a triangle.

14. The earthquake that occurred in Mexico on September 8, 2017 had a magnitude of 8.1 on the Richter scale.
15. The earthquake that occurred in Mexico on September 19, 2017 had a magnitude of 7.1 on the Richter scale.
16. The September 19<sup>th</sup> earthquake was more devastating even though it was a weaker earthquake because it was a shallow earthquake and it was near Mexico City which has millions of people living in it. The September 8 earthquake was located in the ocean so not many people were affected by it and it was a deeper earthquake.