Name: _____

Date: _____ Period: _____

Worksheet: Earthquakes II

1. Earthquakes generate compressional waves (P-waves) and shear waves (S-waves). Compared to the speed of shear waves in a given earth material, the speed of compressional waves is
    a. always faster
    b. always slower
    c. always the same
    d. sometimes faster and sometimes slower

2. What happens to P-waves and S-waves from an earthquake when they reach the outer core?
    a. S-waves are transmitted through the outer core, but P-waves are not transmitted.
    b. P-waves are transmitted through the outer core, but S-waves are not transmitted.
    c. Both P-waves and S-waves are transmitted through the outer core.
    d. Neither P-waves nor S-waves are transmitted through the outer core.

3. The time that an earthquake occurs can be inferred by knowing the
    a. distances between seismograph stations
    b. epicenter distance and arrival time of the P-waves
    c. travel time of the S-waves
    d. arrival time of P-waves

4. If the epicenter of an earthquake is located near Massena, New York, where would the greatest difference in arrival times of the P- and S-waves for this earthquake occur?
    a. Utica, New York
    b. Binghamton, New York
    c. Plattsburgh, New York
    d. Albany, New York

5. An earthquake occurred at 5:00:00 a.m. According to the Earth Science Reference Tables, at what time would the P-wave reach a seismic station 3,000 kilometers from the epicenter?
    a. 5:04:30 a.m.
    b. 5:05:40 a.m.
    c. 5:01:40 a.m.
    d. 5:10:15 a.m.

6. A huge undersea earthquake off the Alaskan coastline could produce a
    a. tsunami
    b. cyclone
    c. hurricane
    d. thunderstorm

7. Which statement best characterizes the arrival times of the seismic waves at station?
    a. The P-wave and S-wave arrived at the same time.
    b. The S-wave arrived first.
    c. Only the S-wave arrived.
    d. The P-wave arrived first.

Worksheet: Earthquakes II

8. The inference that the inner core of the Earth is solid is based on analysis of
    a. seismic data
    b. crustal rock
    c. radioactive data
    d. meteorite composition

Questions 9 through 12 refer to the following:

An earthquake originated in New York State. The P-wave travel time for this earthquake was recorded in the data table below for four widely separated seismic stations, A, B, C, and D.

Seismic Station	P-wave Travel Time
A	8 min 20 sec
B	0 min 31 sec
C	12 min 18 sec
D	3 min 20 sec

9. If the first P-wave arrived at seismic station A at 10 hrs: 22 min: 30 sec, what was the origin time for the earthquake?
    a. 02 hrs: 02 min: 30 sec
    b. 10 hrs: 30 min: 50 sec
    c. 10 hrs: 14 min: 10 sec
    d. 10 hrs: 22 min: 30 sec

10. If it takes 50 seconds for the P-wave to arrive at Buffalo, about how long would it take for the S-wave from this same earthquake to arrive at Buffalo?
    a. 0 min: 50 sec
    b. 6 min: 40 sec
    c. 4 min: 00 sec
    d. 1 min: 40 sec

11. What is the approximate distance between the earthquake's epicenter and station A?
    a. 7,500 km
    b. 1,130 km
    c. 5,100 km
    d. 2,400 km

12. Which seismic station could be located in New York State?
    a. D
    b. C
    c. B
    d. A