Answer the following questions about the seismogram. Round times to the closest half second.

1. At what time did the P waves begin (Time in seconds)? _________________seconds

2. At what time did the S waves begin (Time in seconds)? _________________seconds

3. How long did the surface waves last? ____________________seconds

Estimate times for 4-6 to the nearest 50 seconds.

4. At what time did the P waves begin (Time in seconds)? _________________seconds

5. At what time did the S waves begin (Time in seconds)? _________________seconds

6. How long did the surface waves last? ____________________seconds
The following graph shows on the P and S waves from an earthquake (no surface waves; P waves are the smaller ones, S waves are larger ones). Answer the questions and use the graph at bottom to find the distance from the earthquake.

4. Find the difference between the P wave starting time and S wave starting time to determine the SP time gap.

\[ \text{S - P time} = \text{SP Gap} \]

5. Use the S-P line on the bottom graph to estimate the distance to the epicenter

____ Km

6. CHALLENGE: Calculate the S-P gap and distance for the earthquake at the bottom (HINT: This graph DOES show surface waves).

\[ \text{S - P time} = \text{SP Gap} \]

distance to the epicenter ____ Km