Name_____   Date_____

Tracking Sharks

You are an engineer in charge of testing new equipment that can detect shark trackers from the air. The equipment in the drone can detect the shark tracker within a total distance of 750 feet. Each hour on the hour the tracker sends a signal of its location to the drone. You are flying a drone 250 feet above the surface of the ocean.

- It is 9:00 am when the drone first detects the shark tracker.
- At 9:00 am the shark is 275 feet below sea level.
- At 10:00 am the shark is 392 feet below sea level.
- From 10:00 am to 11:00 am the shark descends 85 feet.
- From 11:00 am to noon, the shark dives again, descending by an amount equal to the average of the first two dives.

a) At which hours will the drone be able to detect the shark? Justify your thinking.

b) What depth change can the shark make from 12pm – 1pm that will allow the shark to be **detectable** by the drone? Explain how you know.

c) What depth change can the shark make from 12pm – 1pm that will allow the shark to be **undetectable** by the drone? Explain how you know.