

7. [9 points] Enjoying breakfast outdoors in a coastal Mediterranean town, Tommy notices a ship that is anchored offshore. The ship is stationed above a reef which lies below the surface of the water, and a series of waves causes its height to oscillate sinusoidally with a period of 6 seconds. When Tommy begins observing, the hull of the ship is at its highest point, 20 feet above the reef. After 1.5 seconds, the hull is 11 feet above the reef.
- a. [6 points] Write a function $h(t)$ that gives the height of the ship's hull above the reef t seconds after Tommy begins observing.

- b. [3 points] According to your function, will the hull of the ship hit the reef? Explain.