

Physics 11 – Wave Worksheet

1. A physics student sitting on the beach notices that a wave hits the beach every 5.0 seconds, and the waves seem to be about 15m apart. What is the speed of these waves?
2. What is the frequency of laser light that has a wavelength of 623nm?
3. Out in the ocean, a wave crest 3.2m high meets a wave trough from another direction which is 2.6m deep. How high is the resulting wave?
4. Fill out the following table with the correct name of the wave phenomena:

_____	A wave hits the beach at a 30 degree angle, and a wave is observed leaving the beach at 30 degrees.
_____	A wave enters shallow water and the wavelength decreases
_____	A sailboat seeks shelter behind an island in a storm, but finds that there are still waves behind the island
_____	A fisherman throws his spear directly at a fish seen in the water, but misses.
_____	A student walking beside the E&N railway track notices that the pitch of the train sound increases as the train approaches
_____	A student puts on a pair of sunglasses when snowboarding, and notices that it is now easier to see the moguls.
_____	A laser light shines into a beaker of water. The beam is seen to bend at the point where the light enters the water.
_____	A rogue wave capsizes a small freighter in the North Sea.
5. Ocean waves enter a harbour through two entrances 50m apart. On the seawall which is 200m from the entrances, an observer notices very large waves hitting the wall every 35m. What is the wavelength of these waves?
6. Laser light with a wavelength of 632 nm is put through a diffraction grating where the openings are 0.40 mm apart. How far from the central bright beam will the 3rd bright spot be on the wall 1.0 m away?