

Practice Test #1 — Answers

1. 0.240 m
2. (a) 24.8 m, (b) 16.3 s
3. 0.562 m^3 (517 kg)
4. 28.4 m/s
5. (a) 1.5 m/s, (b) 40 m^{-1} , (c) right
6. 1344 m/s
7. 16 Hz
8. 297 Hz ($L = 0.29 \text{ m}$)

NOTE: The answers below are terse. You will need to be more verbose on the test.

9. No. I is inverse square, but β is a logarithmic scale.
10. Longitudinal: sound, earthquake; Transverse: electromagnetic, string, surface water, earthquake.
11. Lowers. The anchor displaced its weight in water while in the boat, but only its volume in water while on the bottom. (Draw free body diagrams. Evaluate buoyant forces.)
12. Only at the bottom. There, \vec{v} is horizontal, and \vec{a} is vertical because it's all centripetal acceleration, no tangential.