

Høsten 2015

FYS100 Fysikk

Problems week 38

Have a go at these. And for each, make a little sketch to illustrate the solution.

First some problems from the book:

- 4.12, 4.13, 4.22, 4.25, 4.41, 4.47, 4.51.

Additional Problem 1 (ObIII, 2013)

A submarine targets a battleship at a distance $d = 20$ km, in the direction $\theta_1 = 15$ degrees East of North. The battleship is travelling at $v_1 = 30$ km/h in a direction $\theta_2 = 40$ degrees East of North. The torpedoes of the submarine can move at a speed of $v_2 = 100$ km/h.

- a) In which direction relative to North should the submarine fire its torpedo to hit the battleship?
- b) How long will it take the torpedo to reach the target?