

Høsten 2015

# FYS100 Fysikk

## Problems week 37

Have a go at these. And for each, make a little sketch (x-t diagram, or whatever is appropriate) to illustrate the solution.

First some problems from the book:

- 2.3, 2.4, 2.11, 2.20, 2.35, 2.54, 2.85

**Additional Problem 1 (Prob. 5, Oblig. 1, 2013):**

Wile E. Coyote is keen to catch the Road-Runner (check it on Wikipedia, if you don't know the reference. It won't matter for the following). He hides behind a big rock, and as the Road-Runner zooms past at constant speed  $v = 15.0$  m/s, Coyote lights up his ACME rocket pack. After waiting 2.00 s for the rocket fuse to burn down, he accelerates at a constant rate of 5.00 m/s<sup>2</sup>, in pursuit of the Road-Runner.

- a) At what time, with what speed and after what distance does he catch the Road-Runner?
- b) What if the rocket would stop working after 4 seconds of acceleration and Coyote would continue at constant speed?