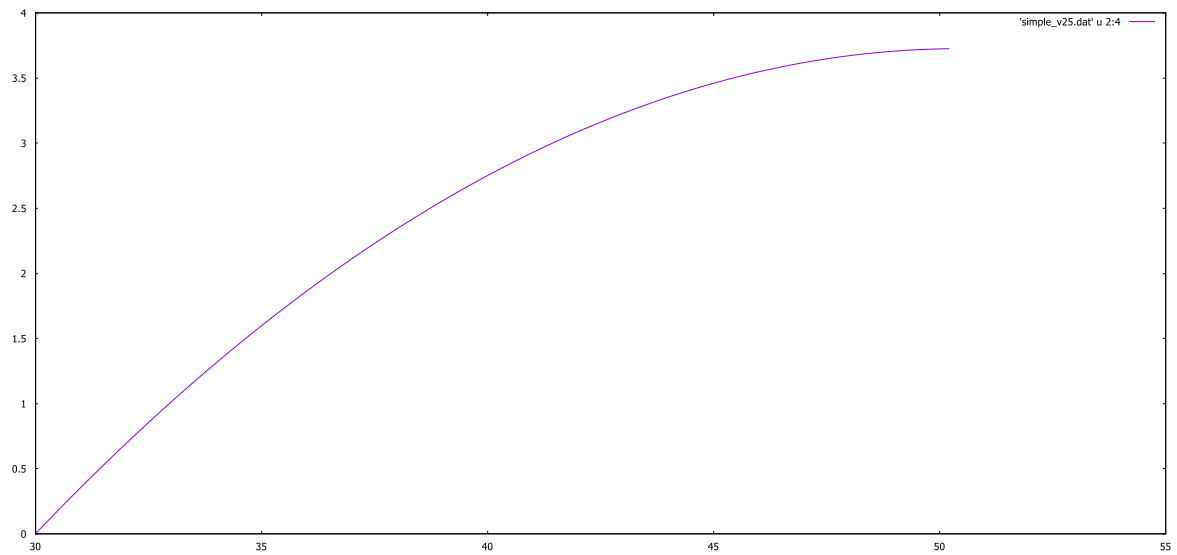


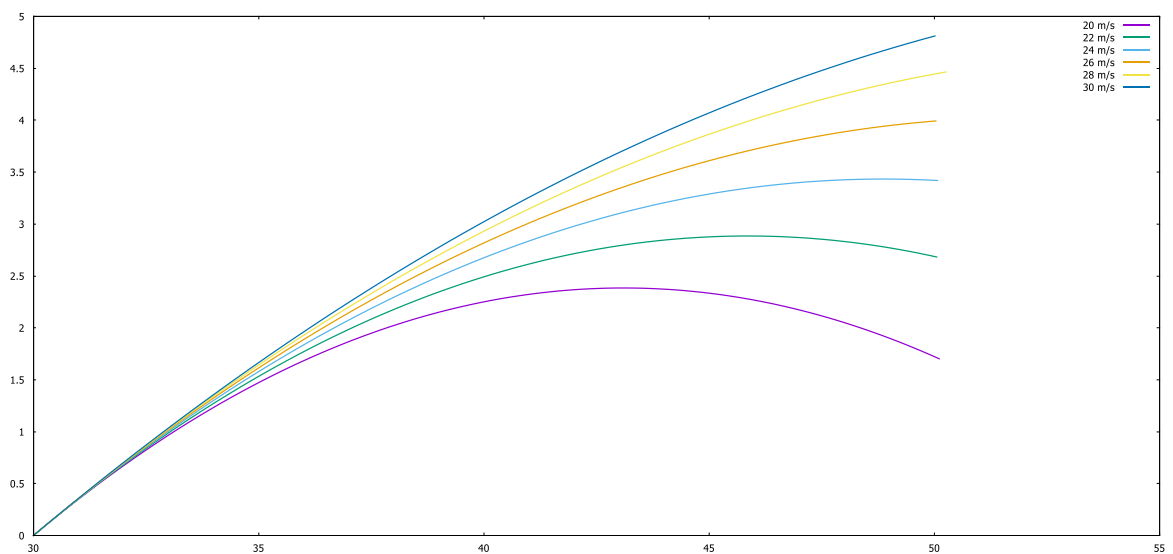
Q4(b) :

Plotting by gnuplot :



Q4(c) :

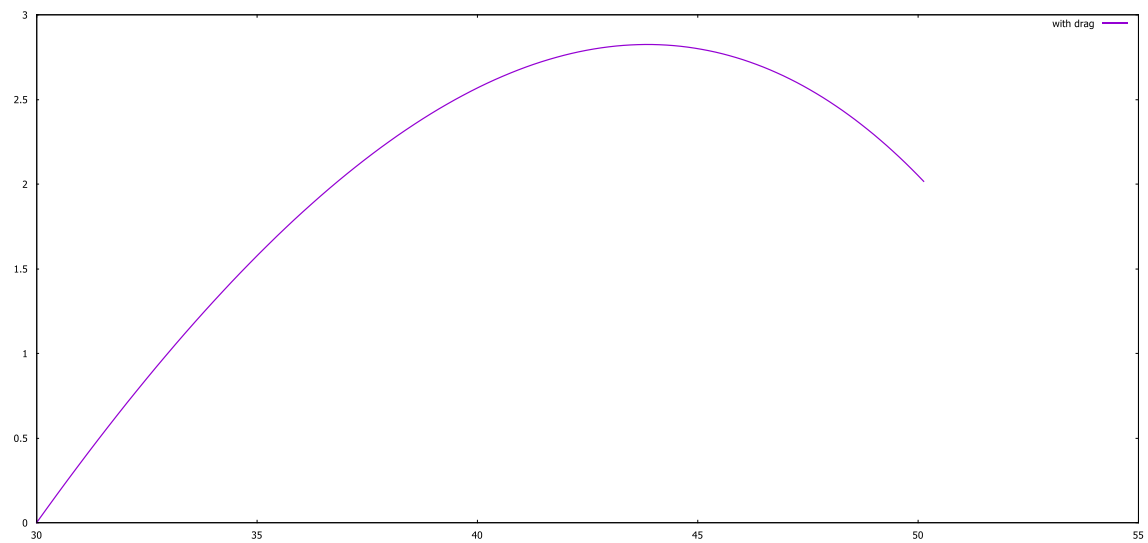
Plotting by gnuplot :



Only $v = 20\text{m/s}$ is a **good** shot, all the remaining speed are **over** shots.

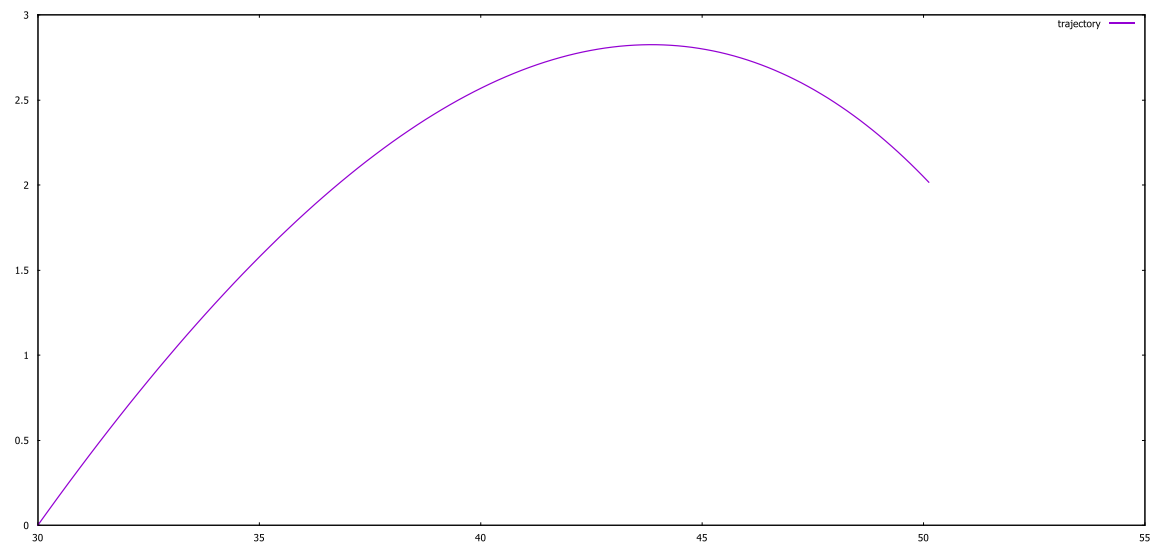
Q4(d) :

With drag force, now the shot is good. The goalkeeper have 1.12s before the ball crosses the goal line.



Q4(e):

Plotting by gnuplot :



Q4(f):

The ball has 0.02m from the vertical post.