<u>Quiz 2</u>

Your team has made a multi-rate test in a dry gas well. The measurements of flowing bottomhole pressure versus gas rate at standard conditions are given in the Excel file http://www.ipt.ntnu.no/~stanko/files/Courses/OG621/2021/Quizzes/Quiz_02.xlsm.

- 1. What are the units of C and n in the backpressure equation?
- 2. Using the backpressure equation, obtain a C and n that match the measured values.

Tips:

-The backpressure equation is programmed in VBA, available with function name IPRqg() -Assume initial values of C = 200 and n = 0.5

-Calculate the difference squared between the rate provided by the equation and the measured value. Sum all differences for all points.

-Use the Excel Solver to minimize the sum by changing C and n.

-To help the solver finding a solution, add the constraint that $n \ge 0.5$ and $n \le 1$