Calculating Gallons Per Minute
Calculating Nozzle gpm

\[ gpm = (29.7)(d^2 \times \sqrt{NP}) \]
Example

**Tip = 2"**  **NP = 80 psi**

- $gpm = (29.7)(d^2 \times \sqrt{NP})$
- $gpm = (29.7)(2^2 \times \sqrt{80})$
- $gpm = (29.7)(4 \times 8.94)$
- $gpm = (29.7)(35.76)$
- $gpm = 1,062.072$
- $gpm = 1,062$
Calculating Hydrant gpm

- Different formula
  - Add a coefficient step
- Based on hydrant design
- Flow pressure (FP) not (NP)
  - Taken with a pitot gauge at the 2½" outlet
- \[ gpm = (29.7)[c \times (d^2 \times \sqrt{FP})] \]
Hydrant Coefficients

Based on the interior design of the hydrant

C = 0.7
C = 0.8
C = 0.9
Example: Hydrant gpm

FP = 30  c = .8  d = 2.5

- \( gpm = (29.7)[c \times (d^2 \times \sqrt{FP})] \)
- \( gpm = (29.7)[.8 \times (2.5^2 \times \sqrt{30})] \)
- \( gpm = (29.7)[.8 \times (6.25 \times 5.48)] \)
- \( gpm = (29.7)(.8 \times 34.25) \)
- \( gpm = (29.7)(27.4) \)
- \( gpm = 813.78 \)
- \( gpm = 814 \)