```
!pip install CoolProp
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Collecting CoolProp
  Downloading CoolProp-6.4.1-cp37-cp37m-manylinux1_x86_64.whl (4.2 MB)
     |████████████████████████████████| 4.2 MB 4.2 MB/s
Installing collected packages: CoolProp
Successfully installed CoolProp-6.4.1
```

```
# Clear all variable definitions
%reset -f
from numpy import *              # Import common numerical functions (like sqrt)
from matplotlib.pyplot import *  # Import plotting functions (like plot)
import CoolProp.CoolProp as CP   # Import CoolProp library

R = 8.31446            # Universal Gas Constant (in kJ/kgK)
M = 44.01              # Molar Mass of CO2
RCO2 = R/M             # CO2 gas constant
p = 6000               # pressure in kPa
T = 30 + 273.16        # Conversion of temperature from Celsius to Kelvin
vIdeal = RCO2 * T / p  # Ideal Gas Law solved for v
print('Ideal v = ', vIdeal, 'm^3/kg')
```

```
Ideal v =  0.009545073998333714 m^3/kg
```

```
# Clear all variable definitions
%reset -f
from numpy import *              # Import common numerical functions (like sqrt)
from matplotlib.pyplot import *  # Import plotting functions (like plot)
import CoolProp.CoolProp as CP   # Import CoolProp library

p = 6000*1000          # Conversion of pressure from kPa to Pa
T = 30 + 273.16        # Conversion of temperature from Celsius to Kelvin
dActual = CP.PropsSI('D', 'P', p, 'T', T, 'CO2')
vActual = 1/dActual
print('Actual v = ', vActual, 'm^3/kg')
```

```
Actual v =  0.005833989613407337 m^3/kg
```