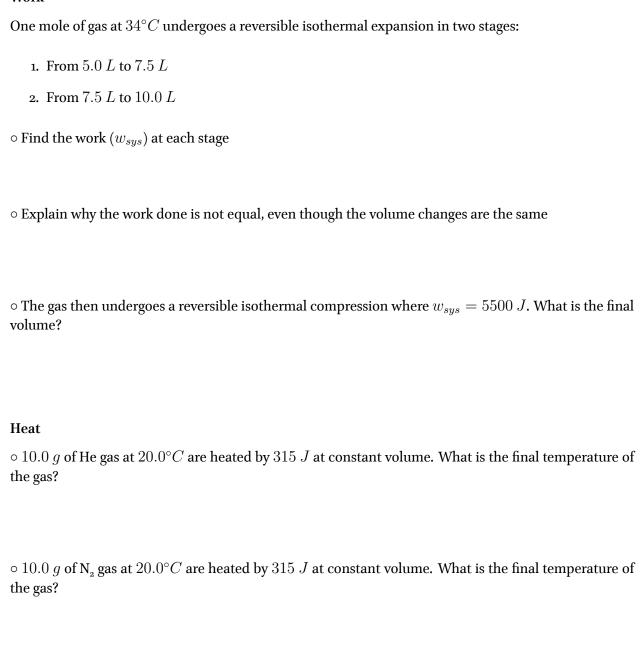
## Quiz 2.1 – Internal energy

Name:
Ideal Gas Heat Capacities
$\circ$ Give the constant volume heat capacities (in the low temperature limit) for perfect gases with the following geometries:
1. Monoatomic
2. Linear Diatomic
3. Non-linear Polyatomic
o Describe qualitatively what would happen to these heat capacities in the high temperature limit and why
o Explain why we must designate constant pressure or constant volume for heat capacities
$\circ$ Predict qualitatively how $C_V$ might compare to $C_p$ for a gas at a given temperature

## Work



 $\circ$  Find the heat  $(q_{sys})$  required to cool 10.0~g of methane gas by  $5^{\circ}C$  at constant volume

## Птичка (A Little Bird)

By Александр Сергеевич Пушкин (Alexander Sergeyevich Pushkin)

В чужбине свято наблюдаю Родной обычай старины: На волю птичку выпускаю При светлом празднике весны.

Я стал доступен утешенью; За что на бога мне роптать, Когда хоть одному творенью Я мог свободу даровать!

In alien lands I keep the body Of ancient native rites and things: I gladly free a little birdie At celebration of the spring.

I'm now free for consolation, And thankful to almighty Lord: At least, to one of his creations I've given freedom in this world!