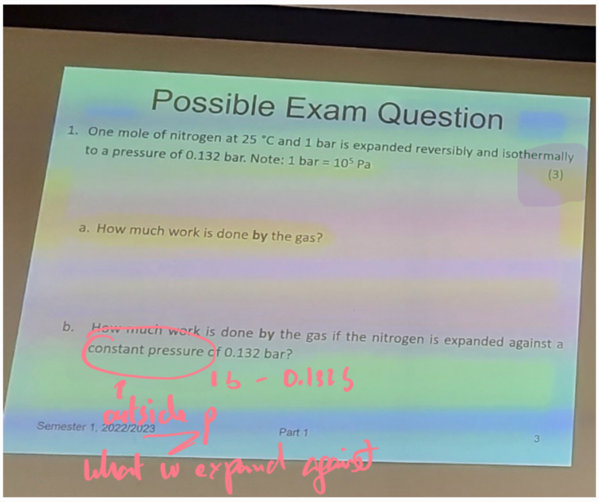

1\. a) (2) marks

$W = -pV$

$p = 1.32 \times 10^4 Pa$

$V = ?$

temp = 25°

p = 1 -> 0.132

1 mole N

$PV = nRT$

$$V = \frac{1R(25+273)}{1.32 \times 10^4 Pa}$$

2

need to say: I assume Nitrogen is an ideal gas

$dW = -pdV$

$$\Delta W = \int_{V_1}^{V_2} p \, dV$$

$PV = nRT$

$$p = \frac{nRT}{V}$$

$\Delta W = -5.02 kJ$

b) (1) marks

$\Delta W = -2.15 kJ$