



Since the heat shown is out of the gas, it is Q_c where:

$$Q_c = |Q_{out}| = 115 \text{ J}$$

and, $W_s = \text{area bounded by cycle}$

$$= (400 \times 10^3 - 100 \times 10^3)(200 \times 10^{-6} - 100 \times 10^{-6})$$

$$W_s = \underline{30 \text{ J}} = W_{out}$$

Now, $Q_H = W_{out} + Q_c = \underline{145 \text{ J}}$

$$\therefore \eta = \frac{W_{out}}{Q_H} = \underline{0.207} = \underline{20.7\%}$$