700 J of work is done on a system. The process decreases the thermal energy of the system by 300 J. How much energy is transferred to or from the system?

Given:

    Work done on the system: $\qquad\qquad\qquad$ W = 700 J

    Change in thermal energy of the system: $\qquad$ $\Delta E_H = -\,300$ J

Determine: Energy transfer to or from the system: Q

Use Formula:

$$\Delta E_H = W + Q \text{ -----------------(1)}$$

Rearranging (1):

$$Q = \Delta E_H - W \text{ --------------- (2)}$$

Substituting for W and $\Delta E_H$ in (2):

**$Q = -\,300 - 700 = -\,1000$ J**

**1000 J of energy is transferred from the system.**