

- 12** A liquid is maintained at boiling point by means of an electric heater.

The constant rate at which the liquid boils is measured for two different powers of the heater as shown.

power of heater	rate of loss of mass of liquid
$P_1$	$m_1$
$P_2$	$m_2$

For each power of the heater,  $P_1$  or  $P_2$ , the rate of heat loss to the environment is the same.

Which expression is the correct expression for rate of heat loss to the environment?

**A**  $\frac{P_1 - P_2}{m_2 - m_1}$

**B**  $P_1 - P_2$

**C**  $\frac{P_1}{m_1}$

**D**  $\frac{P_1 m_2 - P_2 m_1}{m_2 - m_1}$