Calculate the heat required to vaporise 7.83 g of benzene at its normal boiling point.

Heat of vaporization (benzene) = 30.7 kJ/mol

Solution

M (C_6H_6) = 78.11 g/mol

n =m/ M

n = 7.83 g / 78.11 g/ mol = 0.1 mol

$Q = \Delta H_{vap} \times n$ = 30.7 kJ/ mol × 0.1mol = 3.07 kJ

Answer: 3.07 kJ