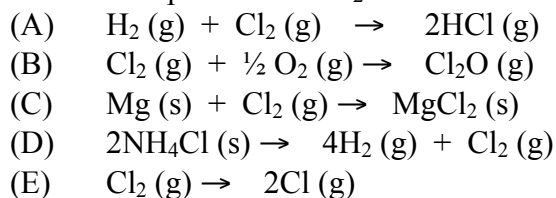


AP MULTIPLE CHOICE QUESTIONS  
CH. 19, SET 1

1989

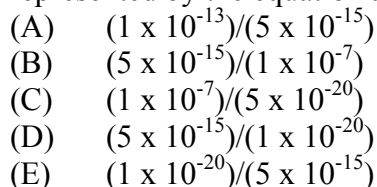
41. Which of the following reactions has the largest value of  $\Delta S$  per mole of  $\text{Cl}_2$ ?



66.  $\text{MnS}(\text{s}) + 2\text{H}^+ \rightleftharpoons \text{Mn}^{2+} + \text{H}_2\text{S}(\text{g})$

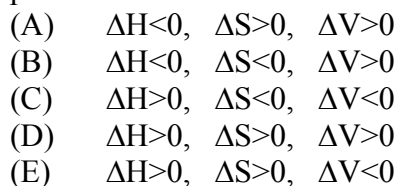
At  $25^\circ\text{C}$  the solubility product constant,  $K_{\text{sp}}$ , for  $\text{MnS}$  is  $5 \times 10^{-15}$  and the acid dissociation constants for  $\text{H}_2\text{S}$  are  $1 \times 10^{-7}$  and  $1 \times 10^{-13}$ , respectively.

What is the equilibrium constant for the reaction represented by the equation above at  $25^\circ\text{C}$ ?

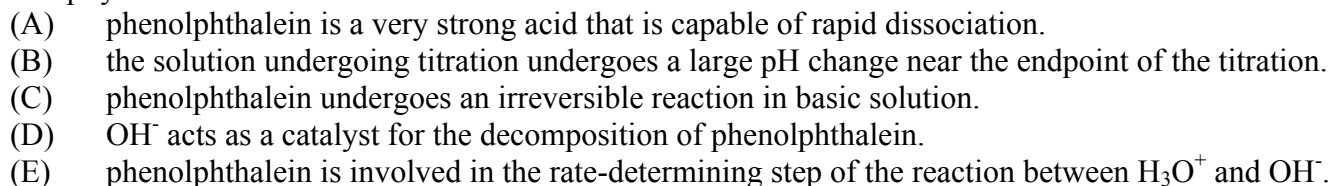


70.  $\text{H}_2\text{O}(\text{s}) \rightarrow \text{H}_2\text{O}(\text{l})$

When ice melts at its normal melting point,  $273.16\text{ K}$  and  $1\text{ atm}$ , which of the following is true for the process shown above?



35. When phenolphthalein is used as the indicator in a titration of an  $\text{HCl}$  solution with a solution of  $\text{NaOH}$ , the indicator undergoes a color change from clear to red at the endpoint of the titration. This color change occurs abruptly because



1984

56. A cube of ice is added to some hot water in a rigid, insulated container, which is then sealed. There is no heat exchange with the surroundings. What has happened to the total energy and the total entropy when the system reaches equilibrium?

	<u>Energy</u>	<u>Entropy</u>
(A)	remains constant	remains constant
(B)	remains constant	decreases
(C)	remains constant	increases
(D)	decreases	increases
(E)	increases	decreases