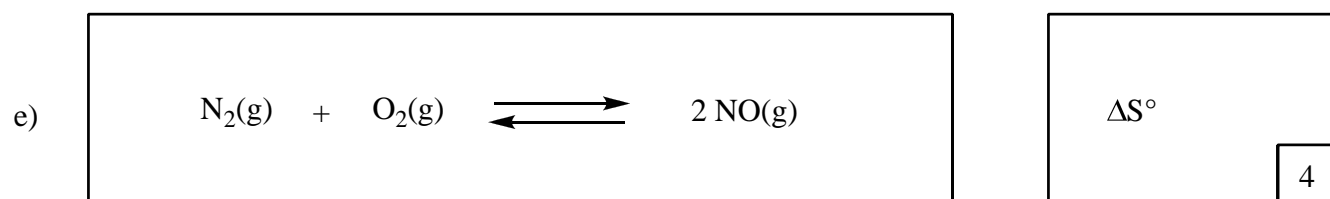
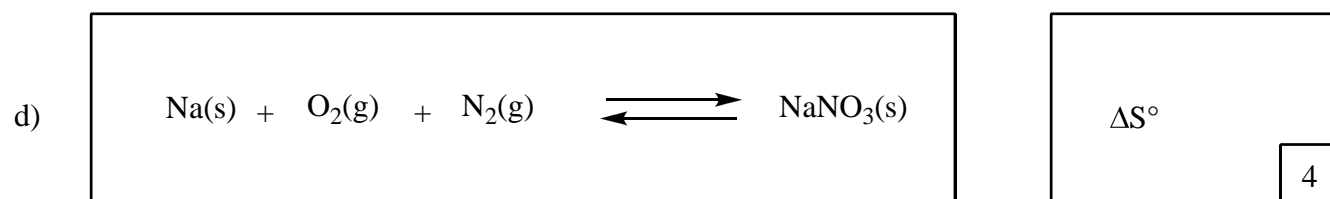
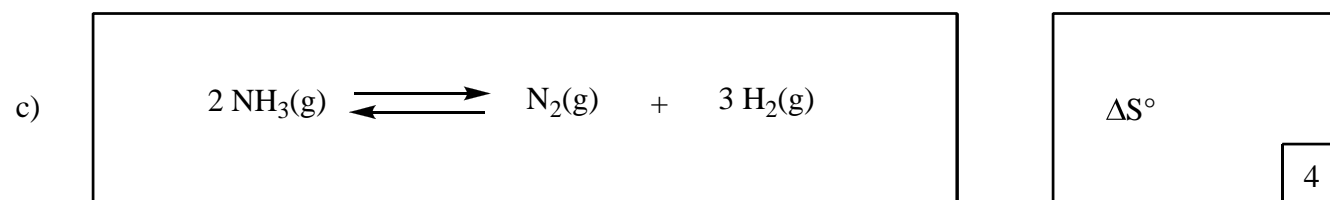
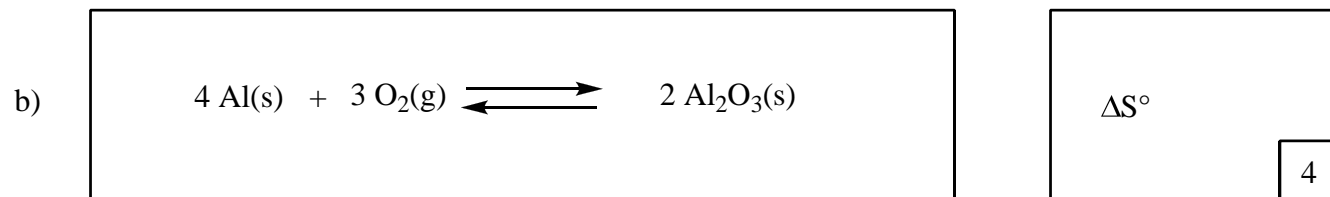
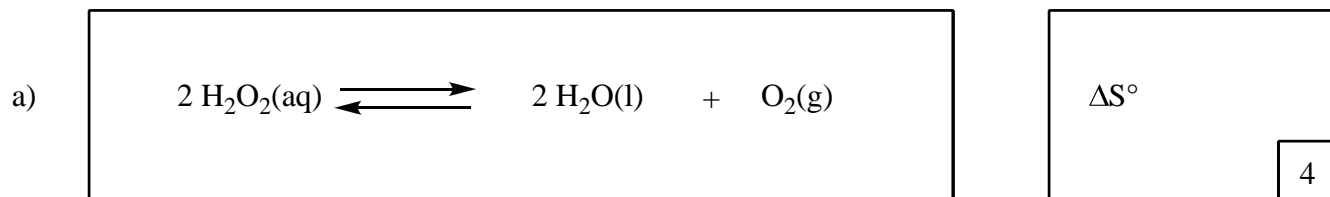


Problem of the Day 38 **CHEM 1252**

Suggested textbook problems for Chapter 19: 29, 37, 47, 51, 53, 61, 75

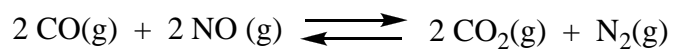
1. In each case, predict if the entropy change is greater than, less than, or equal to zero.



2. Fill in the missing table entries.

ΔS_{rxn}	ΔH_{rxn}	ΔG_{rxn}	Comment	ΔS_{rxn}	ΔH_{rxn}	ΔG_{rxn}	Comment
+	-	-	1	0	1	-	Spontaneous
1	0	-	Spontaneous	1	0	+	1
-	+	1	Not Spontaneous	+	+	1	$T\Delta S > \Delta H$

3. a) Automobile catalytic converters help remove pollutants such as carbon monoxide and nitrogen oxides. Using the data in the table, determine $\Delta G^\circ_{\text{rxn}}$ for the reaction given below.



Compound	ΔH°_f kJ/mol	S° J/(mol K)
CO(g)	-110.5	197.5
NO(g)	90.29	210.65
CO ₂ (g)	-393.5	213.7
N ₂ (g)	0	191.5

$\Delta G^\circ_{\text{rxn}} =$ 10

b) Is the reaction spontaneous or non spontaneous at 25°C?

(Circle One)

Spontaneous

Nonspontaneous

2