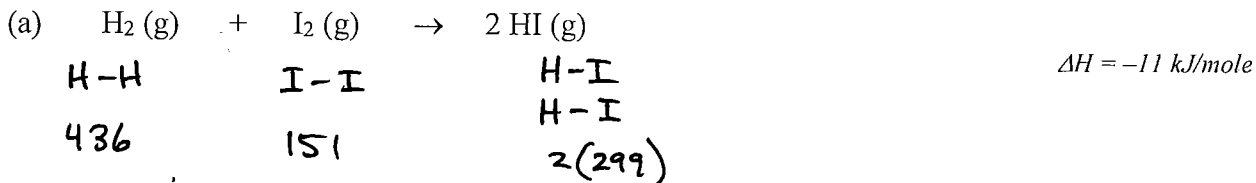
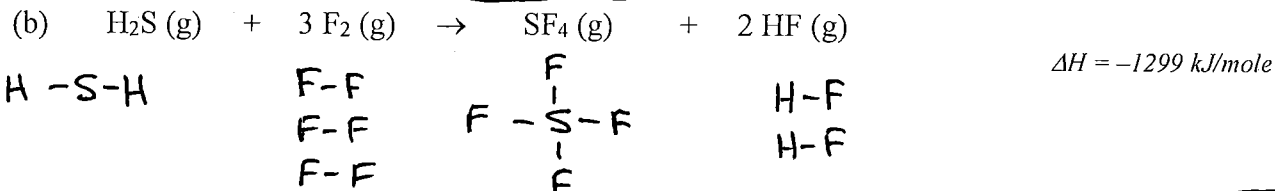


Estimating Enthalpy Changes in Chemical Reactions

1. Use the bond enthalpies to estimate the  $\Delta H$  for each of the following gas-phase reactions.

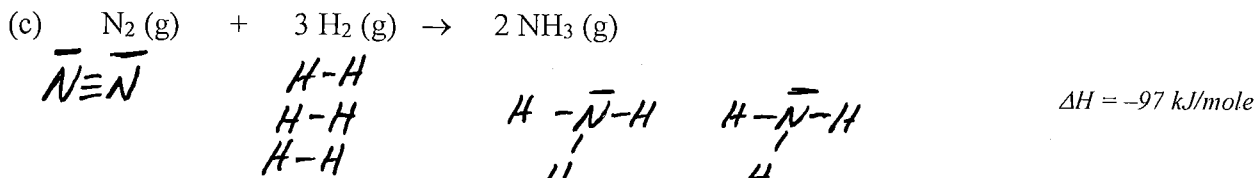


BROKEN - FORMED  
 $[436 + 151] - [(2)(299)]$   
 $587 - 598 = -11 \text{ kJ}$



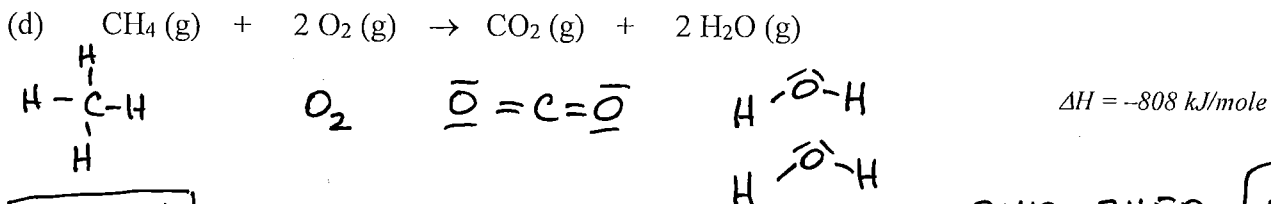
BROKEN	FORMED
S-H 2(339)	S-F 4(327)
F-F 3(155)	H-F 2(567)
1143	2442

$1143 - 2442 = -1299 \text{ kJ}$



BROKEN	FORMED
N≡N 941	N-H 6(391)
H-H 3(436)	2346
2249	

$2249 - 2346 = -97 \text{ kJ}$



BROKEN	FORMED
C-H 4(413)	C=O 2(799)
O <sub>2</sub> 2(495)	H-O 4(463)
2642	3450

$2642 - 3450 = -808 \text{ kJ}$