

AP WORKSHEET 07DGI: ANSWERS

(a) At 355°C; $H_2 = 6.94 \text{ atm}$, $N_2 = 2.31 \text{ atm}$

At 455°C; $H_2 = 7.34 \text{ atm}$, $N_2 = 2.45 \text{ atm}$

At 555°C; $H_2 = 7.44 \text{ atm}$, $N_2 = 2.48 \text{ atm}$

(b) At 355°C; 7.11×10^{-4}

At 455°C; 4.60×10^{-5}

At 555°C; 6.42×10^{-6}

(c) Negative. As the temperature increases the yield of products goes down (smaller K_p and lower partial pressure of ammonia) so the forward reaction must be exothermic

(d)(i) Much larger amount of ammonia would suggest that the forward reaction benefits from increased pressure which is consistent with Le Chatelier's principle

(ii) 1.84×10^{-3}

(e) To increase the rate of the reaction. It does not affect the value of K