Exercise 6.3
Reactions of Metal Oxides with Acids (Including Water)

This exercise assumes that you can do Exercises 6.1 and 6.2.

1.

(a) Write a balanced chemical equation for the reaction between the oxide anion (O^{2-}) and H^+. *You do not need to include states of matter.*

(b) Why is this reaction favoured in the forward direction?

2.

(a) Write a balanced chemical equation for the reaction between the oxide anion and water. *You do not need to include states of matter.*

(b) Why is this reaction usually favoured in the forward direction at room temperature?

(c) When (if ever) would this reaction be favoured in the reverse direction?

3. Write a balanced chemical equation for each of the following reactions. *Include states of matter.*

(a) Li_2O reacts with $H^+(aq)$

(b) CaO reacts with $H^+(aq)$

(c) MgO reacts with HBr(aq)

(d) Na_2O reacts with HBr(aq)

(e) BaO reacts with H_2O

(f) Li_2O reacts with H_2O

4. Write a balanced chemical equation for each of the following reactions. *Include states of matter.*

(a) $Ba(OH)_2$ is dehydrated upon heating

(b) LiOH is dehydrated upon heating