

Solutions

Each answer shows the steps, then the **result**.

2.1

- the equilibrium constant for the formation of a complex ion from the metal ion and its ligands in solution

2.2

- the complex is very stable

3.1 C

- Water is omitted from the K_{stab} expression

3.2 B

- The equilibrium moves towards the complex with the larger K_{stab}

3.3

(a)

- $$K_{\text{stab}} = \frac{[\text{Cu}(\text{NH}_3)_4(\text{H}_2\text{O})_2]^{2+}}{[\text{Cu}(\text{H}_2\text{O})_6]^{2+}[\text{NH}_3]^4}$$

(b)

- the ammonia complex is more stable, so the equilibrium lies far to the right and the exchange goes almost to completion

3.4

- the ammonia complex has a much larger K_{stab} (is more stable); so excess ammonia drives the equilibrium to replace the water ligands and form the ammonia complex