Solutions

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

2.1

- The bond length (the equilibrium separation of the atoms)

2.2

- The bond energy — the energy needed to break the bond

2.3

- A (deeper well, 400 kJ/mol)

3.1 C

- the bond length is at the energy minimum

3.2

(a)

- X (110 pm)

(b)

- X (500 kJ/mol)

(c)

- Shorter bonds tend to be stronger

3.3

- Coulomb's law $E \propto \frac{q_1 q_2}{r}$: MgO has charges $2 \times 2 = 4$ vs $1 \times 1 = 1$ for NaCl, so the attraction (and bond strength) is much greater