

## pH Questions

1. Convert the following hydrogen ion concentrations (all in mol dm<sup>-3</sup>) into pHs.

a) 0.01

b)  $7.50 \times 10^{-10}$

c)  $3.00 \times 10^{-4}$

2. Convert the following pHs into hydrogen ion concentrations in mol dm<sup>-3</sup>

a) 1.20

b) 8.40

c) 13.0

3. What is the pH of 0.01 mol dm<sup>-3</sup> sulphuric acid, H<sub>2</sub>SO<sub>4</sub>.

4. Calculate the pH of pure water at 15°C. ( $K_w = 4.52 \times 10^{-15}$  mol<sup>2</sup> dm<sup>-6</sup>).

5. What is the pH of  $0.10 \text{ mol dm}^{-3}$  sodium hydroxide solution, NaOH. ( $K_w = 1 \times 10^{-14} \text{ mol}^2 \text{ dm}^{-6}$ ).
6. What is the pH of  $0.0150 \text{ mol dm}^{-3}$  calcium hydroxide solution,  $\text{Ca}(\text{OH})_2$ . ( $K_w = 1 \times 10^{-14} \text{ mol}^2 \text{ dm}^{-6}$ ).
7. What is the pH of  $0.01 \text{ mol dm}^{-3}$  ethanoic acid. ( $K_a = 1.74 \times 10^{-5} \text{ mol dm}^{-3}$ )
8. What is the pH of  $0.05 \text{ mol dm}^{-3}$  methanoic acid, HCOOH, if its  $\text{p}K_a$  is 3.75?