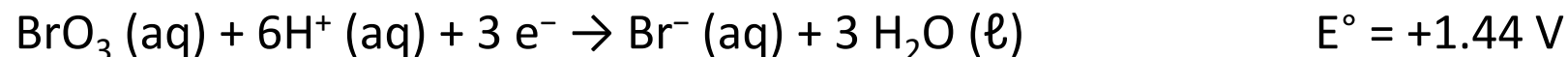


Cells under non-standard conditions

Challenge questions



- (1) a) What is the **pH** of this half-cell under standard conditions?
b) Follow-up: What would be the pH of a **basic** half-cell under standard conditions?
- (2) If the BrO_3/Br^- were connected to the following half-cell, which species would undergo **reduction** under standard conditions?

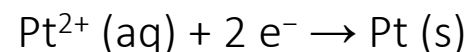


- a. Pt (s)
- b. $\text{Pt}^{2+} (\text{aq})$
- c. $\text{BrO}_3 (\text{aq})$
- d. $\text{Br}^- (\text{aq})$
- e. $\text{H}^+ (\text{aq})$



$$E^\circ = +1.44 \text{ V}$$

- (3) If the **pH is increased** in this half-cell, what happens to the reduction potential (measured relative to SHE)?
- a. E increases
 - b. E decreases
 - c. E stays the same
 - d. More information is needed
- (4) At what **pH** will this cell become the anode when paired with the Pt^{2+}/Pt half-cell to make a voltaic cell? Assume all non $[\text{H}^+]$ concentrations are still at standard conditions.



$$E^\circ = +1.20 \text{ V}$$

Answers

1. a) pH 0
b) pH 14
2. C
3. A
4. pH > 2.03