

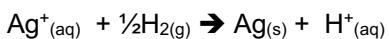
AP WORKSHEET 09GHIJ: ANSWERS

1.

- (a) (i) 0.27 V
(ii) 1.38×10^9

(b) ΔG will be significantly negative since the reaction is spontaneous with a positive E and a large K.

2. 5.45×10^{-13} (worked solution below)



$$E^\circ = +0.80 \text{ V}$$

New voltage NOT + 0.80 V, so apply Nernst equation

$$+0.437 = +0.80 - (0.0592/1) \log ([1]/[\text{Ag}^+])$$

Solving for Ag^+ , we get $[\text{Ag}^+] = 7.38 \times 10^{-7}$

Since $K_{\text{sp}} = [\text{Ag}^+][\text{Br}^-]$, i.e., x^2 , $K_{\text{sp}} = 5.45 \times 10^{-13}$

3.

(a) -1.21 V

(b) It is not spontaneous and it does not occur.

4.

(a) 1.235 V

(b) 1.227 V