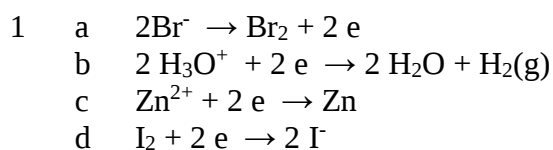
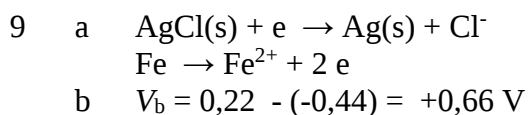
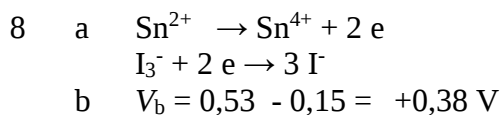
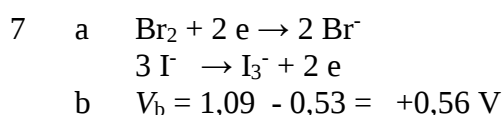
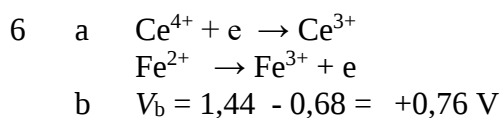
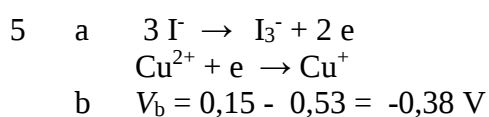
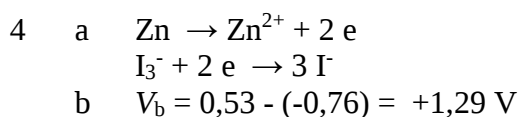


Antwoorden opgaven



- 2 a +
b +
c -
d -

- 3 a kathode
b anode
c kathode
d kathode
e anode



(5) reactie loopt niet





- 11 a $2 \text{Cr}^{2+} + \text{Co}^{2+} \rightarrow 2 \text{Cr}^{3+} + \text{Co}$ $-0,28 - (-0,41) = 0,13 \text{ V}$
 b $\text{Pb} + \text{I}_3^- \rightarrow \text{Pb}^{2+} + 3 \text{I}^-$ $0,53 - (-0,13) = 0,66 \text{ V}$
 c $\text{Fe} + 2 \text{Ag}^+ \rightarrow \text{Fe}^{2+} + 2 \text{Ag(s)}$ $0,80 - (-0,44) = 1,24 \text{ V}$
 d $\text{H}_2 + 2 \text{H}_2\text{O} + \text{Sn}^{4+} \rightarrow 2 \text{H}_3\text{O}^+ + \text{Sn}^{2+}$ $0,15 - 0,00 = 0,15 \text{ V}$
 e $\text{Ni} + 2 \text{Ce}^{4+} \rightarrow \text{Ni}^{2+} + 2 \text{Ce}^{3+}$ $1,44 - (-0,25) = 1,69 \text{ V}$

12
$$V = V^0 + \frac{0,0591}{n} \log \frac{[K]^p \cdot [L]^q}{[M]^r}$$

- 13 a $+0,25 \text{ V}$
 b $-0,17 \text{ V}$
 c $+0,49 \text{ V}$
 d $+0,33 \text{ V}$
 e $+0,50 \text{ V}$
 f $+1,40 \text{ V}$
 g $+1,05 \text{ V}$

- 14 a $+1,10 \text{ V}$
 b $+0,12 \text{ V}$
 c $+0,22 \text{ V}$
 d $+0,93 \text{ V}$
 e $+0,12 \text{ V}$
 f $+0,33 \text{ V}$
 g $+0,55 \text{ V}$
 h $+0,98 \text{ V}$
 i $+0,82 \text{ V}$

15 51 min

16 644 mg

17 0,497 A

- 19 a $2,87 \text{ V}$
 b $1,29 \text{ V}$
 c $0,83 \text{ V}$
 d $0,71 \text{ V}$

- 20 a $2 \text{Fe}^{3+} + \text{Pb} \rightarrow 2 \text{Fe}^{2+} + \text{Pb}^{2+}$ $V = +0,90 \text{ V}$
 b $2 \text{Ag}^+ + \text{Zn} \rightarrow 2 \text{Ag} + \text{Zn}^{2+}$ $V = +1,56 \text{ V}$
 c $\text{Sn}^{4+} + \text{Cu} \rightarrow \text{Sn}^{2+} + \text{Cu}^{2+}$ $V = -0,19 \text{ V}$

21 a -1,69 V
b -0,15 V
c +1,39 V
d + 0,02 V

22 a +1,10 V
b +0,006 V
c +0,080 V
d +1,51 V
e -0,30 V

23 9,5 min

24 3,38 A