## Answer on the question #64172, Chemistry / General Chemistry

## Question:

balance the following redox equation using the half reaction method TcO4-+As->Tc+ AsO2-

## Answer:

Reduction half-reaction:

$$TcO_4^- + 8H^+ + 7e^- \rightarrow Tc + 4H_2O$$

Oxidation half-reaction:

$$As + 2H_2O - 3e^- \rightarrow AsO_2^- + 4H^+$$

As we can see, the coefficients before the electron specification in the equation are 7 and 3. So, let's multiply the reduction by 3 and oxidation by 7 and sum them up:

$$3TcO_4^- + 24H^+ + 7As + 14H_2O \rightarrow 7AsO_2^- + 28H^+ + 3Tc + 12H_2O$$
  
Now, let's simplify the hydrogen cations and water molecules:

$$3TcO_4^- + 7As + 2H_2O \rightarrow 7AsO_2^- + 4H^+ + 3Tc$$

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