

## Question #58432, Chemistry / General Chemistry

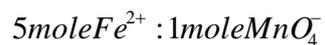
What is the molarity of a  $\text{MnO}_4^-$  solution if 23.5 mL of this solution is required to react completely with 30.0 mL of 0.134 M  $\text{Fe}^{2+}$  solution according to the equation  $5\text{Fe}^{2+}(\text{aq}) + \text{MnO}_4^-(\text{aq}) + 8\text{H}^+(\text{aq}) \rightarrow 5\text{Fe}^{3+}(\text{aq}) + \text{Mn}^{2+}(\text{aq}) + 4\text{H}_2\text{O}(\text{l})$

### Answer

$$C_1 \cdot V_1 = C_2 \cdot V_2$$

$$C_x \cdot 23.5 = 0.134 \cdot 30$$

$$C_x = \frac{0.134 \cdot 30}{23.5} = 0.171M$$



$$C_M(\text{MnO}_4^-) = \frac{0.171}{5} = 0.0342M$$

$$\text{Answer: } [C] = 0.0342M$$