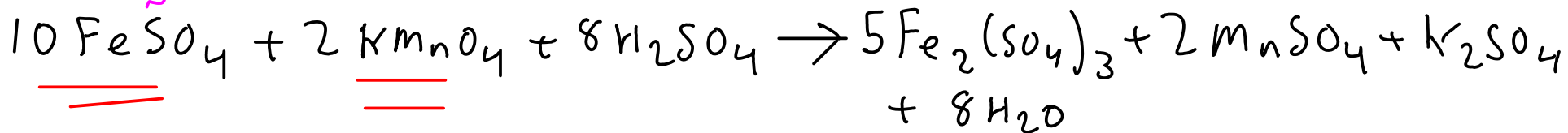


$$151.90 \text{ g/mol}$$



How many mL of 0.250M potassium permanganate are needed to react with 3.36 g of iron(II) sulfate?

- 1 - Convert mass of iron(II) sulfate to moles. Use formula weight.
- 2 - Convert moles iron(II) sulfate to moles potassium permanganate. Use chemical equation.
- 3 - Convert moles potassium permanganate to volume. Use concentration and definition of milli- prefix

$$\textcircled{1} 151.90 \text{ g FeSO}_4 = \text{mol FeSO}_4 \quad \textcircled{2} 10 \text{ mol FeSO}_4 = 2 \text{ mol KMnO}_4$$

$$\textcircled{3} 0.250 \text{ mol KMnO}_4 = \text{L}$$

$$\text{mL} = 10^{-3} \text{ L}$$

$$3.36 \text{ g FeSO}_4 \times \frac{\text{mol FeSO}_4}{151.90 \text{ g FeSO}_4} \times \frac{2 \text{ mol KMnO}_4}{10 \text{ mol FeSO}_4} \times \frac{\text{L}}{0.250 \text{ mol KMnO}_4} \times \frac{\text{mL}}{10^{-3} \text{ L}} =$$

$$= \boxed{17.7 \text{ mL of } 0.250 \text{ M KMnO}_4}$$