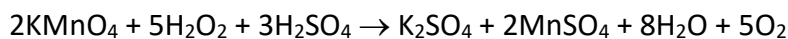


## Answer on Question #82656 – Chemistry – General Chemistry

Given the stoichiometry of the reaction and the amount of  $\text{MnO}_4^-$  consumed in the reaction, how many moles of  $\text{H}_2\text{O}_2$  were present in the old solution? Choose the closest answer

- a) 0.00651 mol
- b) 6.51 mol
- c) 0.0316 mol
- d) 0.126 mol

### Solution:



For the second titration with the old  $\text{H}_2\text{O}_2$

$$n(\text{MnO}_4^-) = C \times V = 0.2 \text{ mol/L} \times 0.01268 \text{ L} = 2.54 \times 10^{-3} \text{ mol}$$

Based on the ratio that 2 molecules of permanganate neutralise 5 molecules of  $\text{H}_2\text{O}_2$ , the number of moles of  $\text{H}_2\text{O}_2$  (that were neutralized) is  $5/2 \times$  the number of moles of permanganate

$$n(\text{MnO}_4^-) = 2 \text{ mol}; n(\text{H}_2\text{O}_2) = 5 \text{ mol}$$

$$n(\text{MnO}_4^-) = 2.54 \times 10^{-3} \text{ mol}, n(\text{H}_2\text{O}_2) = 6.35 \times 10^{-3} \text{ mol}$$

**Answer:** a) 0.00651 mol

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