

Answer on Question #58030 - <Chemistry> - <General Chemistry>

When studying the reaction $A+B \rightarrow C+D$, a student mixed together known concentrations A and B, the timed the appearance of D, a colored compound. The first trial contained 0.05 mol A and 0.1 mol B. the measured time was 60 sec. the second trial contained 0.1 mol A and 0.1 mol B, and the reaction took 29 sec. what is the order of the reaction with respect to A? Explain.

The average rate of reaction (A):

$$v = \pm \frac{\Delta C}{\Delta \tau} = \frac{0.1-0,05}{60-29} = 0,03 \frac{mol}{l \cdot sec}$$

The average rate of reaction (B):

$$v = \pm \frac{\Delta C}{\Delta \tau} = 0$$

Answer: substance A will react longer than substance B