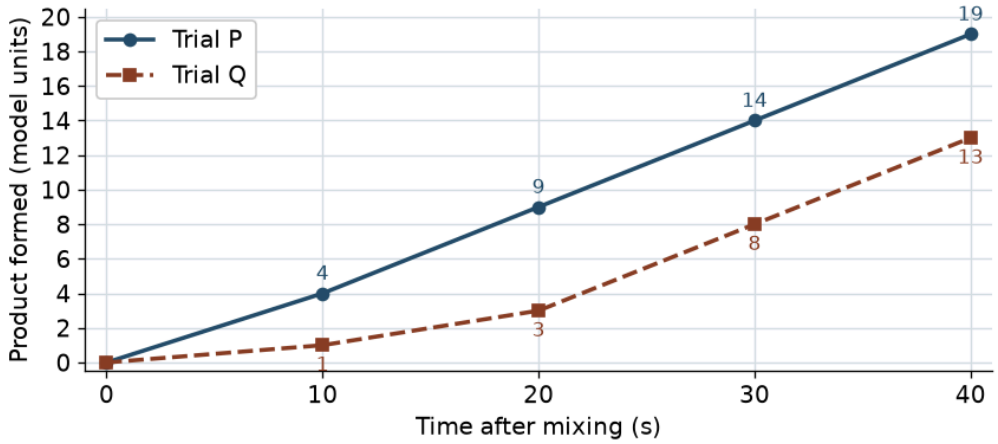
Reading a Reaction After Warm-Up

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

A display runs the same gas-forming model reaction twice. Both runs use the same starting amounts and mixing method. P starts at 35 °C and remains there. Q starts at 20 °C and warms to 35 °C at 20 s. Q then stays at 35 °C. Neither run exhausts a reactant during the graph.



Product formation during the two trials.

1 In which listed interval do both trials first form the same amount of new product?

(1) 0 to 10 s

(2) 10 to 20 s

(3) 20 to 30 s

(4) The amounts differ in all three intervals.

2 Calculate the average rate of product formation in each trial from 0 to 20 s. [1]

Answer and work

3 A student looks at the product amounts at 40 s and says Q is still forming product more slowly from 30 to 40 s. Use the graph to evaluate the claim. [1]

Answer and work

The class now wants to separate the effect of starting temperature from any difference in how the two runs were measured.

4 Describe a repeat that checks whether the early rate gap disappears when both reactions begin at 35 °C. State what to measure. [1]

Answer and work