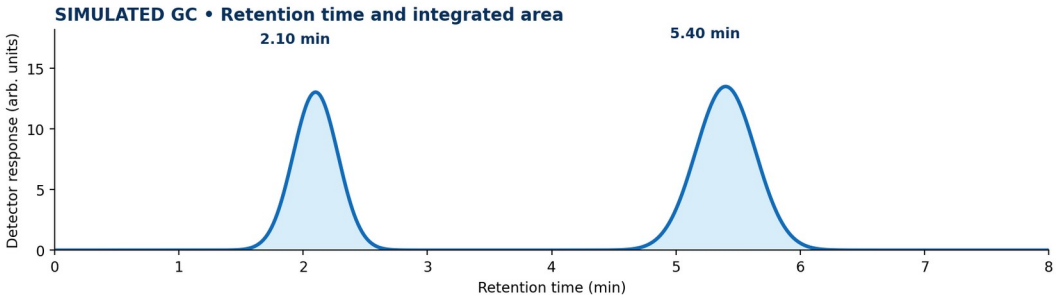
GC Retention and Peak-Area Reasoning

Calculate peak metrics and distinguish uncorrected signal from composition.

STUDENT PRACTICE • SIMULATED DATA

Name: _____ Date: _____



All signals and numbers in this worksheet are simulated for teaching. GC uncorrected area percentages are not validated mole or mass compositions.

1. Peak A has tR = 2.10 min and area 420 AU. Peak B has tR = 5.40 min and area 580 AU. Calculate the time separation and area% A.

2. Three peaks have areas 215, 435 and 350 AU. Determine area% of the first peak.

3. Peak A has area 600 AU and peak B 400 AU. Response-per-mole factors from validated standards are A=2.00 and B=1.00 AU/mol in consistent scaled units. Calculate the corrected mole fraction of A.

4. Why is a 70% uncorrected GC area fraction not necessarily 70 mol%, 70 mass% or 70% purity?

5. A sample peak elutes at 4.12 min; a candidate standard elutes at 4.10 min. Is identity proven?

6. Two peaks have tR values separated by 0.40 min but substantially overlapping widths. Does separation in tR alone establish baseline resolution?