Resistance, compliance, and the reservoir equation — review sheet

Use this after attempting the worked examples and practice. Explain each claim in words before calculating.

Key ideas

- Flow responds to an along-path pressure drop and resistance.
- Compliance links stored-volume change to distending-pressure change.
- Inflow minus outflow accounts for storage.
- The simplest useful spatial model depends on the question.

Common errors and repairs

Compliance and resistance are interchangeable. Their units differ: mL/mmHg versus mmHg s/mL; one represents storage and the other a flow relation.

Equal flows imply zero volume. They imply unchanged volume.

Retrieve without your notes

- What sets the final pressure in the constant-inflow reservoir?
- Name an observation that a single compartment cannot resolve.

Readiness check

- Distinguish a pressure drop along a pathway from the distending pressure across its wall.
- Compute a flow and a stored-volume change with consistent units.
- Explain how compliance changes a filling transient without changing this model's final pressure.
- Choose a 0D, 1D or 3D description to match a stated question and identify missing evidence.