

Solutions

2.1

- $80 + 40/3 \approx 93$ mmHg ✓.

2.2

- $100 \times 50 = 5$ L/min – unchanged if SV falls proportionally ✓.

2.3

- Preload widens, contractility tilts up, afterload narrows.

3.1

- Filling falls $\rightarrow$ CO $\approx$ 3 L/min; baroreflex roughly doubles SVR.
- $MAP \propto 3 \times 2 = 6$ vs baseline $5 \times 1 = 5$: $\sim 120\%$ – pressure near-normal.
- Perfusion = flow per organ: CO is down 40% while pressure looks defended – flow, not pressure, feeds kidneys.

3.2

- Regurgitant ejection returns part of the width to the atrium: forward + backward = total width.
- Reflex tachycardia: hold forward CO by rate when SV leaks.
- Width overestimates FORWARD stroke: part is regurgitant.