Checking Which Bubble Feeds the Other

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

A display models two soap bubbles with the same film composition. The inside pressure exceeds the outside pressure by 8 Pa·cm divided by the radius in centimeters. All readings are relative to the same room pressure, which is marked 0 Pa. A negative reading means the pressure is below room pressure. Compare initial readings before the bubbles change size.

Bubble	Radius (cm)	Outside reading relative to room (Pa)
P	1.0	0
Q	2.0	0

1 Calculate the inside pressure reading for each bubble relative to the room. Include the outside reading. [1]

Answer and work

2 The display opens a gas path between the bubbles. Which way does gas initially flow in the model?

(1) From P to Q

(2) From Q to P

(3) No net flow

(4) The two pressures are insufficient

3 A student says equal outside pressures guarantee equal inside pressures. Evaluate the claim using both radii. [1]

Answer and work

A repeat starts with the same two radii. The outside reading around Q stays at 0 Pa. The class changes the outside pressure around P before connecting them.

4 Find the outside reading around P that makes the inside pressures equal before connection. Give it relative to the room. [1]

Answer and work