Checking a Gas Outside the Ideal Model

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

A simulation compresses the same gas at a fixed temperature. Its ideal comparison assumes particles occupy negligible space and do not attract. In that comparison pressure times volume is constant. The simulator independently checks that the gas particle count stays fixed.

Volume (model units)	**Measured pressure (model units)**
3	80
2	110
1	270

1 Which pressure does the ideal comparison predict at volume 2 using the first reading?

(1) 80

(2) 110

(3) 120

(4) 160

2 Calculate the ideal comparison at volume 1. State whether the last measured pressure is higher or lower. [1]

Answer and work

The display proposes two particle effects. Attraction can lower pressure relative to the ideal comparison. At close spacing, finite particle size can leave less space for movement and raise pressure relative to the ideal comparison.

3 Match each of the two compressed readings to the effect consistent with its direction away from the ideal prediction. [1]

Answer and work

4 A student attributes both pressure differences to gas escaping. Select whether the evidence supports or refutes the claim. Use the independent count and the last pressure reading. [1]

Select one

- [ ] Supports the claim
- [ ] Refutes the claim

Answer and work