Reading a Gas Mixture After a Small Leak

Scoring guide · one credit per question · review written work against each rubric

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Question 1

Choice (1)

P loses 20/40 = 1/2 of its particles. Q loses 10/40 = 1/4.

Question 2

Before the leak, Q accounts for 40 of 80 particles, or one half. Afterward it accounts for 30 of 50 particles, or three fifths.

Question 3

Q drops from 40 to 30 particles while the total drops from 80 to 50. Its share rises from 40/80 = 0.50 to 30/50 = 0.60 because P loses a greater fraction. The chamber loses Q particles even though their share rises.

Question 4

The final total is 20 + 30 = 50 particles compared with 80 at the start. Pressure falls to 80 × 50/80 = 50 kPa. The fraction of Q does not give the total count by itself.