Checking Gas Fill With a Balloon Mass

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Question 1

Choice (2)

Subtract the empty balloon mass: 4.4 − 3.0 = 1.4 g.

Question 2

The same volume contains 0.4 g of helium or 2.4 g of air. The unknown contains 1.4 g, which lies between those limits and fits a blend.

Question 3

The gas mass is 1.4 × 3.0/2.0 = 2.1 g. Add the 3.0 g empty balloon to get 5.1 g.

Question 4

The gas mass scales with volume, but the empty balloon stays at 3.0 g. Multiplying 4.4 g would also increase the unchanged empty-balloon mass.