Checking a Powder Sample Before and After Mixing

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

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Question 1

Choice (1)

The settled halves differ by 30 percentage points. The mixed halves differ by two.

Question 2

The two halves have equal mass. The settled fraction is (30 + 60)/2 = 45%, and the mixed fraction is (44 + 46)/2 = 45%.

Question 3

The whole-bin value is 45% in both conditions. After settling the upper half has 30%, so that condition fails the half-bin requirement. After mixing both halves exceed 40%, and the bin qualifies.

Question 4

The weighted fraction is 0.25 × 30% + 0.75 × 50% = 45%. The lower region has more mass and contributes more to the result.