Choosing a Dilution for Two Detector Bands

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

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Question 1

Choice (2)

Dividing by three gives six for P and two for Q. A factor of two leaves P at nine, and a factor of four drops Q to 1.5.

Question 2

P must be at or below eight, so its factor must be at least 18/8 = 2.25. Q must be at or above two, so its factor can be at most 6/2 = 3.

Question 3

P would give 18/4 = 4.5, but Q would give 6/4 = 1.5. The stronger dilution puts Q below the accurate range.

Question 4

P needs a factor of at least 24/8 = 3. Q needs a factor of at most 4/2 = 2. The requirements have no shared factor.

Question 5

Dilute one portion by a factor of three and use P = 24/3 = 8. Dilute the other by a factor of two and use Q = 4/2 = 2. Both used readings are within range. Accept other pairs that place the selected channel in range for each portion.