Finding Dye Carryover in a Print Studio

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

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Question 1

The slope is 0.12 per 2.0 mg/L, or 0.060 absorbance units per mg/L. The sample concentration is 0.30 ÷ 0.060 = 5.0 mg/L. Accept equivalent linear interpolation between 4.0 and 6.0 mg/L.

Question 2

Choice (3)

An absorbance of 0.18 corresponds to 3.0 mg/L. Adding water doubled the solution volume without changing the amount of dye, so the original screened sample was at 6.0 mg/L.

Question 3

The screened sample still absorbs light. Its diluted portion has an absorbance of 0.18, compared with 0.00 for the dye-free standard. The dye is still present, even though visible specks were removed.

Question 4

The two samples may have had different starting concentrations. Split the same clear dye solution into two portions. Pass one through the screen and leave the other unscreened. Compare their concentrations using the same method. Accept another matched test that isolates the effect of screening.