Parts per Million Worksheet

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

Parts per Million

Question 1

Choice (1)

One kilogram contains a million milligrams, so 3 mg per kg is 3 parts per million by mass.

Question 2

Convert 2.00 kg to 2.00×10^6 mg. Then (6.00 mg ÷ 2.00×10^6 mg) × 10^6 = 3.00 ppm.

Question 3

Choice (2)

Mass ppm describes how much solute is present per million parts of the final solution by mass.

Question 4

You need the mass per liter of the solution, or its density. Dividing mg/L by kg/L gives mg/kg.

Model Screening Records

Question 5

Choice (2)

P and R each contain 3.0 mg/kg. Q contains 3.6 mg ÷ 0.90 kg = 4.0 mg/kg.

Question 6

P is 2.4 mg ÷ 0.80 kg = 3.0 mg/kg. R is 4.8 mg ÷ 1.60 kg = 3.0 mg/kg. Both are 3.0 ppm.

Question 7

Choice (2)

Q measures 4.0 ppm, which exceeds 3.5 ppm. P and R each measure 3.0 ppm.

Question 8

The portion has half the dye mass and half the solution mass. Both quantities change by the same factor, so the concentration stays 4.0 ppm.