pH and Indicator Data Worksheet

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

pH and Indicator Data

Question 1

Choice (1)

A pH of 4 is below 7.

Question 2

The difference is 5 − 3 = 2 pH units. The hydronium concentration is $10^2 = 100$ times as large at pH 3.

Question 3

The pH 8 sample contains the greater hydronium concentration. A lower pH corresponds to a higher hydronium concentration.

Question 4

Choice (2)

Dilution lowers the hydronium concentration of the acidic solution and moves pH toward neutral.

Indicator Screening

Question 5

Choice (4)

The table identifies yellow as the color above 4.4.

Question 6

The range is 4.4 < pH < 8.2. Yellow X places the pH above 4.4 and colorless Y places it below 8.2.

Question 7

Choice (1)

The pH 7 value satisfies both 4.4 < pH and pH < 8.2.

Question 8

Measure the original sample’s pH with a calibrated pH meter. Compare the reading with pH 7 at 25 °C. An equivalent pH measurement that resolves the classification earns credit.