Surface Area and Reaction Rate Worksheet

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

Surface Area and Reaction Rate

Question 1

Choice (3)

Many small particles provide more exposed surface for a given amount of solid.

Question 2

Crushing changes the exposed surface. It can increase contacts with the solution while leaving the solid’s mass and composition unchanged.

Question 3

One face is (3.0 cm)² = 9.0 cm². Six faces total 54 cm².

Question 4

Choice (1)

Holding mass constant isolates the effect of exposing the same amount in different shapes.

Comparing Equal Masses of a Solid

Question 5

Each 1 cm cube has six faces of 1 cm². Eight cubes expose 8 × 6 = 48 cm².

Question 6

Choice (2)

Q reaches the same amount of product in less time.

Question 7

P exposes 6 × 4 = 24 cm², while Q exposes 48 cm². The larger area allows more contacts with solution per unit time, consistent with Q’s shorter time.

Question 8

Choice (2)

Faces touching another cube are no longer fully exposed to solution.