# Limiting Reactants Worksheet

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

## Limiting Reactants

### Question 1

Choice (1)

Two moles $H_2$ use only one mole $O_2$. $H_2$ runs out while $O_2$ remains.

### Question 2

The balanced ratio is 2 mol $H_2$ to 1 mol $O_2$. Four moles $H_2$ consume 2.00 mol $O_2$. The amount left is 3.00 − 2.00 = 1.00 mol $O_2$.

### Question 3

A balanced equation can require different numbers of moles of the reactants. The limiting reactant is determined by comparing each amount to its required coefficient.

### Question 4

Choice (2)

The balanced equation requires three moles $H_2$ for each mole $N_2$.

## Comparing Starting Mixtures

### Question 5

Choice (2)

Eight moles Al would require six moles $O_2$. Q supplies only three moles $O_2$.

### Question 6

Q has 3.0 mol $O_2$. The balanced ratio is 2 mol $Al_2O_3$ per 3 mol $O_2$, giving 2.0 mol $Al_2O_3$.

### Question 7

Choice (3)

Eight moles Al consume six moles $O_2$. Of the initial 9.0 mol, 3.0 mol remains.

### Question 8

Twelve moles Al is three times the coefficient 4. Nine moles $O_2$ is three times the coefficient 3. The exact ratio leaves neither reactant in excess.