Electron Pairs and Molecular Shape Worksheet

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

Electron Pairs and Molecular Shape

Question 1

Choice (2)

Each C=O double bond counts as one domain, giving two domains around carbon.

Question 2

The three bonds and one lone pair make four domains. Only the bonded atoms are counted when naming the molecular shape, so the lone pair has no H position.

Question 3

Choice (2)

A straight arrangement has a bond angle of 180° and is linear.

Question 4

The four domains point in a roughly tetrahedral arrangement. Two of those directions lead to H atoms, so the three atoms form an angle and the molecule is bent.

Choosing a Model for a Display

Question 5

Choice (4)

In every row, the number of bonded atoms plus the number of lone pairs equals four.

Question 6

It matches CH_4. Methane has four H atoms bonded to central C and no central lone pairs.

Question 7

Choice (2)

Both CH_4 and H_2O have four domains. Methane has four bonded atoms and water has two.

Question 8

The domains around N are arranged approximately tetrahedrally. The three bonded H atoms define a trigonal pyramidal molecular shape because the fourth domain is a lone pair.