

11

A page from a lab notebook is shown below. The page displays data needed to find the empirical formula of a compound.

Mass of crucible	<u>5.23 g</u>
Mass of crucible and iron powder	<u>7.46 g</u>
Mass of iron powder	<u>x</u>
Mass of sulfur added to crucible	<u>1.28 g</u>
Mass of crucible and contents after reaction	<u>8.74 g</u>
Mass of iron-sulfur compound	<u>y</u>

- Calculate the values for x and y . Show your calculations and include units in your answer.
- Assume all the iron and sulfur reacted to form an iron-sulfur compound. Calculate the number of moles of sulfur **and** the number of moles of iron that reacted to form the compound. Show your calculations and include units in your answer.
- Determine the empirical formula for the iron-sulfur compound. Show your calculations or explain your reasoning.