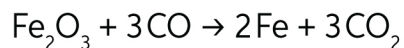


Name : Date :

—o Molar Ratios Worksheet o—

Here is a balanced chemical equation.



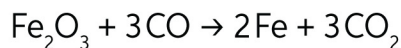
- a) How many moles of Fe are produced by 3 moles of Fe_2O_3 ?
- b) How many moles of CO_2 are produced by 2.5 moles of CO?
- c) How many moles of Fe_2O_3 are needed to produce 45 g of Fe from this reaction?
- d) How many moles of Fe are produced alongside 0.89 moles of CO_2 ?
- e) How many moles of CO are needed to react with 5 moles of Fe_2O_3 ?

Name : _____ Date : _____

—o Molar Ratios Worksheet o—

Answers

Here is a balanced chemical equation.



a) How many moles of Fe are produced by 3 moles of Fe_2O_3 ?

In this reaction, 1 mole of Fe_2O_3 produces 2 moles of Fe

So 3 moles of Fe_2O_3 produce 6 moles of Fe

b) How many moles of CO_2 are produced by 2.5 moles of CO?

In this reaction, 3 moles of CO_2 are produced by 3 moles of CO

So, 2.5 moles of CO produce 2.5 moles of CO_2

c) How many moles of Fe_2O_3 are needed to produce 45 g of Fe from this reaction?

Molar mass of Fe = 55.845 g/mol

1 mole of Fe weighs 55.845 g

In this reaction, 2 moles of Fe, i.e., 111.69 g of Fe is produced by 1 mole of Fe_2O_3

So, 45 g of Fe is produced by 0.4 moles of Fe_2O_3

d) How many moles of Fe are produced alongside 0.89 moles of CO_2 ?

In this reaction, 2 moles of Fe are produced alongside 3 moles of CO_2

So, the number of moles of Fe produced alongside 0.89 moles of $\text{CO}_2 = (2/3) \times 0.89 = 0.59$ moles

e) How many moles of CO are needed to react with 5 moles of Fe_2O_3 ?

In this reaction, 1 mole of Fe_2O_3 reacts with 3 moles of CO

So, the number of moles of CO needed = 3 x 5 = 15 moles