The Complete Guide to:

STOICHIOMETRY

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EXAMPLES WITH CHANGING THE COMPOUND

✓ Grams of one compound ⟶ Grams of another compound

Calculate the mass of CO_2 produced when 75.0 g of Fe is produced.

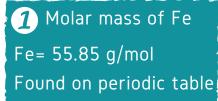Given: 75.0 g Fe   Finding: mass (grams) CO_2

$$Fe_2O_3 + 3\,CO \longrightarrow 2\,Fe + 3\,CO_2$$

Plan :   g Fe **①**⟶ mol Fe **②**⟶ mol CO_2 **③**⟶ g CO_2

75.0 g Fe	1 mol Fe	3 mol CO_2	44.01 g CO_2
	55.85 g Fe	2 mol Fe	1 mol CO_2

① Molar mass of Fe
Fe= 55.85 g/mol
Found on periodic table

② Mole to Mole Ratio
Numbers/Coefficients from balanced equation
$$\frac{3\ mol\ CO_2}{2\ mol\ Fe}$$
1 Fe_2O_3 +**3** CO ⟶ **2** Fe + **3** CO_2

③ Molar mass of CO_2
C = 12.01
O = 16 x 2 = 32
Add it up
12.01 + 32 = 44.01 g/mol

= 88.6504 g CO_2

Round up to 3 sig figs since given value of 75.0 has 3 sig figs

ANSWER = 88.7 g CO_2