Question #54889 - Chemistry - Inorganic Chemistry

Question:

A student heated (4.91x10^0) grams of calcium sulfate dihydrate. How many grams of water should be lost if the sample is heated correctly?

Solution:

$$4.91g & m-?$$

$$\mathbf{CaSO_4 \cdot 2H_2O} \xrightarrow{t} \mathbf{CaSO_4 + 2H_2O} \uparrow$$

$$172 \ g/mol & 18 \ g/mol$$

$$\frac{4.91}{172} = 0.0285 \ mol & 2 \times 0.0285 = 0.057 \ mol$$

$$m(H_2O)=0.057 \times 18=1.03 \ g$$

Answer: $m(H_2O) = 1.03 g$