Answer on Question #57187 - Chemistry - General Chemistry

Question:
Copper reacts with oxygen to form 2 oxides, X and Y. if on analysis, 1.535g of X yielded 1.365g of copper and 1.450 of Y yielded 1.160g of copper. i.determine the chemical formula of X and Y. ii. which law of chemical combination is illustrated by the result.

Solution:

1.535 g X → 1.365 g Cu and according to Law of conservation of mass (1.535-1.365=0.17) g O
1.450 g Y → 1.160 g Cu and according to Law of conservation of mass (1.450-1.160=0.29) g O

Cu – 64 g/mol;
O – 16 g/mol;

for X: according to Law of constant or definite proportion Cu/O= [(1.365÷64)/(0.17÷16)]=
=[0.0213/0.0106] = [2/1]

for Y: according to Law of constant or definite proportion Cu/O= [(1.160÷64)/(0.29÷16)]=
=[0.0181/0.0181] = [1/1]

Answer: X is Cu_2O and Y is CuO; Law of conservation of mass and Law of constant or definite proportion.