

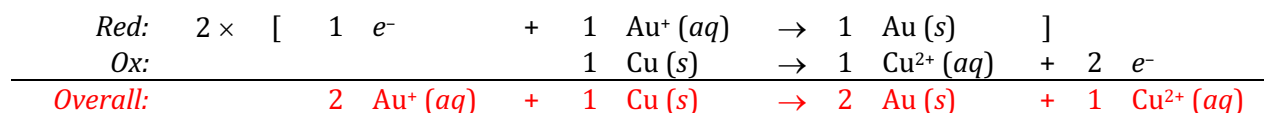
Name: \_\_\_\_\_

Prelude: You and the banker have become best friends, and he has some real gold but it is in solution. You cleverly decide to get solid gold out of these solutions using the techniques from Chem 161.

You attempt to plate out solid gold (Au) using a  $\text{Cu}^{2+}/\text{Cu}(s)$  redox couple. Circle the correct amount of moles of gold produced from a  $\text{Au}^+$  solution if 1 mole of solid copper is oxidized to copper(II). Show your work, including the half-reactions, for full credit.

- A) 0.5 mol Au (s)  
 B) 1 mol Au (s)  
 C) 2 mol Au (s)  
 D) 4 mol Au (s)

- Set up both half-reactions
- All phases have to be included
- Balance the half-reactions correctly  
*Note: It's okay if you choose to multiply both equations by two factors or use fractions (e.g., multiply by  $\frac{1}{2}$  for the oxidation reaction), so long as the electrons cancel out*
- Select answer C and show the stoichiometry required to get the 2 mol Au (s)



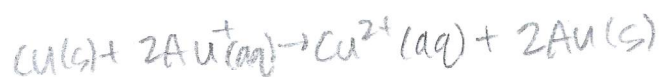
$$1 \text{ mol Cu} \times \frac{2 \text{ mol Au}}{1 \text{ mol Cu}} = 2 \text{ mol Au}$$

$\times \frac{3}{3}$ Name: Irene Pak

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- A) 0.5 mol Au (s)  
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D) 4 mol Au (s)



$$\frac{1 \text{ mol Cu}}{1} \times \frac{2 \text{ mol Au}}{1 \text{ mol Cu}} = \boxed{2 \text{ mol Au (s)}}$$