How many moles of copper are required to produce 10 mol of silver?

Cu(s) + 2AgNO$_3$(aq) $\longrightarrow$ 2Ag(s) + Cu(NO$_3$)$_2$ (aq)

Solution:

Cu(s) + 2AgNO$_3$(aq) $\longrightarrow$ 2Ag(s) + Cu(NO$_3$)$_2$ (aq)

Find the equation of the reaction mole of copper needed to produce 10 moles of silver.

In the ratio of:

$$\frac{n(Cu)}{n(Ag)} = \frac{1}{2}$$

$$n(Cu) = \frac{n(Ag)}{2}$$

$$n(Cu) = \frac{10 mole}{2} = 5 mole$$

Answer: 5 mole of copper.