$$2 \; X_{(aq)} \quad + \quad Y_{(aq)} \quad \rightarrow \quad 5 \; M_{(s)} \quad + \quad T_{2(g)}$$

Given the following information:

$X = $ 10 g / mol
$Y = $ 20 g / mol
$M = $ 6 g / mol
$T = $ 5 g /mol

If I begin with 100 g of solution X and mix it with 1.8×10^{24} molecules of solution Y. How many moles of M will precipitate out of solution AND what volume of T_2 gas will be produced at STP?