

Chap 18
H 121

need the charge



$$23.6 \text{ min} \left(\frac{60 \text{ sec}}{1 \text{ min}} \right) = 1416 \text{ sec}$$

$$(1416 \text{ sec})(6.42 \text{ A}) = 9090.72 \text{ C} \left(\frac{1 \text{ mole}}{96,485 \text{ C}} \right) = 0.0942 \text{ mole } e^-$$

if the metal has a 1+ charge then this would produce 1 mole of metal. $\frac{1.20 \text{ g}}{0.0942 \text{ mol}} = 12.74 \text{ g/mol}$ NOT the 50.9 g/mol the metal has

$$\text{But } \frac{50.9 \text{ g/mol}}{12.74 \text{ g/mol}} = 4 \text{ so it is not } 1:1 \text{ mole } e^- : \text{mol of metal}$$

but a $4:1$
mol of e^- : mol of metal

if the metal (M) takes 4 electrons it has a charge of $4+$ so

