Practice – Stoich - Particle/Moles Name_____hr__

Fill out each ISE table and find the limiting reactant, amount of excess reactant, and amount of each product.

130 2
A) Fe(OH)₃ and 60 H₂CO₃ particles are available to react. Determine LR, excess and products in particles.

2 Fe(OH)₃	+ 3 H₂CO₃	→ 6 HOH	+ Fe₂(CO₃)₃
I 130	60	◯	◯
S -40	-60	+120	+20
E 90	◯	120	20

1. What is the limiting reactant? H_2CO_3

Explain (or show work) how you determined the LR.

H_2CO_3 has less particles + is consumed at a faster rate.

$\dfrac{130\ Fe(OH)_3}{} \dfrac{6\ H_2O}{2\ Fe(OH)_3} = 390\ HOH$

$\dfrac{60\ H_2CO_3}{} \dfrac{6\ H_2O}{3\ H_2CO_3} = 120\ HOH$
  ↑ LR   ↑ less

Show your work in finding proportions for the ISE table:

$\dfrac{60\ H_2CO_3}{} \dfrac{1\ Fe_2(CO_3)_3}{3\ H_2CO_3} = 20\ Fe_2CO_3$

$\dfrac{60\ H_2CO_3}{} \dfrac{2\ Fe(OH)_3}{3\ H_2CO_3} = 40\ Fe(OH)_3$

2. How much excess reactant is left over? __90 Fe(OH)₃__

3. How much of each product is produced? __120 HOH and 20 Fe₂(CO₃)₃__

B) 3.4 moles of C₂H₂ and 9.2 moles of O₂ are available to react. Show your work.

2 C₂H₂	+ 5 O₂	→ 4 CO₂	+ 2 H₂O
I 3.4	9.2	◯	◯
S -3.4	-8.5	+6.8	+3.4
E ◯	0.7	6.8	3.4

1. What is the limiting reactant? C_2H_2

Explain (or show work) how you determined the LR.

$\dfrac{3.4\ C_2H_2}{} \dfrac{4\ CO_2}{2\ C_2H_2} = 6.8\ CO_2$ ← less mol
  ↑ LR.

$\dfrac{9.2\ O_2}{} \dfrac{4\ CO_2}{5\ O_2} = 7.4\ CO_2$

Show your work in finding proportions for the ISE table:

$\dfrac{3.4\ mol\ C_2H_2}{} \dfrac{2\ H_2O}{2\ C_2H_2} = 3.4\ mol\ H_2O$

$\dfrac{3.4\ mol\ C_2H_2}{} \dfrac{5\ O_2}{2\ C_2H_2} = 8.5\ mol\ O_2$

1. How much excess reactant is left over (in moles)? __0.7 mol O₂__

2. How much of each product is produced(in moles)? __6.8 mol CO₂ and 3.4 mol H₂O__