EQUILIBRIUM QUANTITIES 1

Work out the actual number of moles of each species are present at equilibrium.

1)

	$CH_{4(g)}$	+ $H_2O_{(g)}$	⇌ $CO_{(g)}$	+ $3\ H_{2(g)}$
initial moles	1	1	0	0
change in moles				
equilibrium moles			0.4	

2)

	$N_{2(g)}$	+ $3\ H_{2(g)}$	⇌ $2\ NH_{3(g)}$
initial moles	0.1	0.1	0
change in moles			
equilibrium moles	0.07		

3)

	$H_{2(g)}$	+ $I_{2(g)}$	⇌ $2\ HI_{(g)}$
initial moles	10	10	0
change in moles			
equilibrium moles	3		

4)

	$CO_{2(g)}$	+ $3\ H_{2(g)}$	⇌ $CH_3OH_{(g)}$	+ $H_2O_{(g)}$
initial moles	1	1	0	0
change in moles				
equilibrium moles			0.2	

5)

	$2\ SO_{2(g)}$	+ $O_{2(g)}$	⇌ $2\ SO_{3(g)}$
initial moles	2	2	0
change in moles			
equilibrium moles			0.7

6)

	$PCl_{5(g)}$	⇌ $PCl_{3(g)}$	+ $Cl_{2(g)}$
initial moles	1	1	1
change in moles			
equilibrium moles		1.8	

7)

	$CH_{4(g)}$	+ $H_2O_{(g)}$	⇌ $CO_{(g)}$	+ $3\ H_{2(g)}$
initial moles	1	1	1	1
change in moles				
equilibrium moles				1.6

8)

	$N_{2(g)}$	+ $3\ H_{2(g)}$	⇌ $2\ NH_{3(g)}$
initial moles	10	0	10
change in moles			
equilibrium moles			9

9)

	$2\ H_{2(g)}$	+ $CO_{(g)}$	⇌ $CH_3OH_{(g)}$
initial moles	0.5	0.5	0
change in moles			
equilibrium moles	0.1		

10)

	$SO_2Cl_{2(g)}$	⇌ $CH_3OH_{(g)}$	+ $Cl_{2(g}$
initial moles	2.0	0	0
change in moles			
equilibrium moles		0.4	

11)

	$2\ H_{2(g)}$	+ $CO_{(g)}$	⇌ $CH_3OH_{(g)}$
initial moles	1.2	2.0	0
change in moles			
equilibrium moles		1.8	

12)

	$CO_{2(g)}$	+ $3\ H_{2(g)}$	⇌ $CH_3OH_{(g)}$	+ $H_2O_{(g)}$
initial moles	1.0	1.0	0	0
change in moles				
equilibrium moles	0.7			

13)

	2 A	+ B	⇌ C	+ 3 D
initial moles	5.0	10.0	0	0
change in moles				
equilibrium moles			0.5	

14)

	A	+ 3 B	⇌ 2 C	+ D
initial moles	2.0	1.0	0	0
change in moles				
equilibrium moles		0.4		