Part 1

T1: R(X), R(Y), W(X)

T2: R(X), R(Y), W(Y), R(X), R(Y), W(X), R(Z), W(Z)

1)

T1	T2	Action	Step
R(X)		T1 reading X and T2 not started	1
R(Y)		T1 reading Y	2
W(X)		T1 writing X, not committed yet	3
	R(X)	T2 starts reading X, T1 not committed yet, steps 3 and 4 is a WR conflict	4
	R(Y)	T2 reading Y	5
	W(Y)	T2 writing Y	6
	R(X)	T2 reading X, steps 3 and 7 is a WR conflict i.e. dirty read	7
	R(Y)	T2 reading Y	8
	W(X)	T1 rolls back without committing, T2 continues	9
	R(Z)	...	10
	W(Z)		11

At step 9, T1 rolled back without committing and T2 continued. At step 4 and step 7, T2 read the value written by T1 which no longer exists, so T2 reads a dirty value which no longer exists.

2) Let the initial value X be X=50

T1	T2	Action	Step
	R(X)	T2 reading X, T1 not started yet, T2 reads X=50	1
	R(Y)	T2 reading Y	2
	W(Y)	T2 writing Y	3
R(X)		T1 starts reading X as X=50, T2 not committed yet and interleaved	4
R(Y)		T1 reading Y	5
W(X)		T1 writing X and assume it writes it as X=100, steps 1 and 6 cause RW conflict	6
	R(X)	T2 again starts reading X, but reads X=100 since it got modified by T1 at step 6	7
	R(Y)	T2 reading Y	8
...	...	T2 continues	9

At step 7, T2 again reads X, but reads it as X=100 since it was modified by T1 at step 6. At this step, T2 thinks it is running in isolation, but another transaction T1 was also running and changed the value of X to 100. So, the two times T2 reads X, it read differerent values of X (50 and 100) without changing it which is an unrepeatable read

3) Let the initial value of X be X=50

T1	T2	Action	Step
	R(X)	T2 reading X, T1 not started, T2 reads X=50	1
	R(Y)	T2 reading Y	2
	W(Y)	T2 writing Y	3
	R(X)	T2 again reading X=50, T2 interleaved here	4
R(X)		T1 reading X	5
R(Y)		T1 reading Y	6
W(X)		T1 writing X and assume it writes X=100, interleaved uncommitted	7
	R(Y)	T2 again reading Y	8
	W(X)	T2 writing X as X=200 (assume), causes WW conflict between steps 7 and 9	9
	R(Z)	...	10
	...	T2 continues	...

At step 9, T2 is writing X as X=200 and it causes a write-write conflict between steps 7 and 9. The value written by T1 (X=100) is overwritten by T2 as X=200, so we lost the value of T1 which is a lost update.