Process Analysis Questions

1. Suppose you are operating a machine which produces only one type of part and a part is produced every 30 seconds (its cycle time). What is the capacity of your machine in units per hour?

2. You are at Disney World and wait 45 minutes to ride the roller coaster at Space Mountain. Guests board the roller coaster in batches of 20. The ride takes 3 minutes and all riders get off at the same time. What is the cycle time of this process? What is the throughput time?

3. You are the manager of a Surgi-Center that performs minor surgical cases. The Center has 5 operating rooms and, on average, each case takes 60 minutes to perform. After each case clean-up requires 20 minutes. If the Center schedules its first case for 8:00 a.m., no cases are performed between 12:00 and 1:00p.m., and the last case must be completed by 5:00, what is the daily capacity of the Center in cases? What are two ways you can increase the capacity of the Center?

4. A process for making a product has five tasks, as shown in the Table below. All machines are used for each task. A shift consists of 8 actual work hours. Calculate the yield for the process overall, assuming defective units are identified through inspection and scrapped at each task. Calculate the shift capacity, in units for each task. And lastly, which task is the bottleneck of this process?

Task	Yield	Task Time for Each Machine	Number of Machines	Shift Capacity (units)
1	0.95	6 minutes	3	
2	0.82	4 minutes	1	
3	0.97	2 minutes	2	
4	0.92	3 minutes	4	
5	0.89	6 minutes	3	
Total		XXXXXXXXX	XXXXXXXXX	