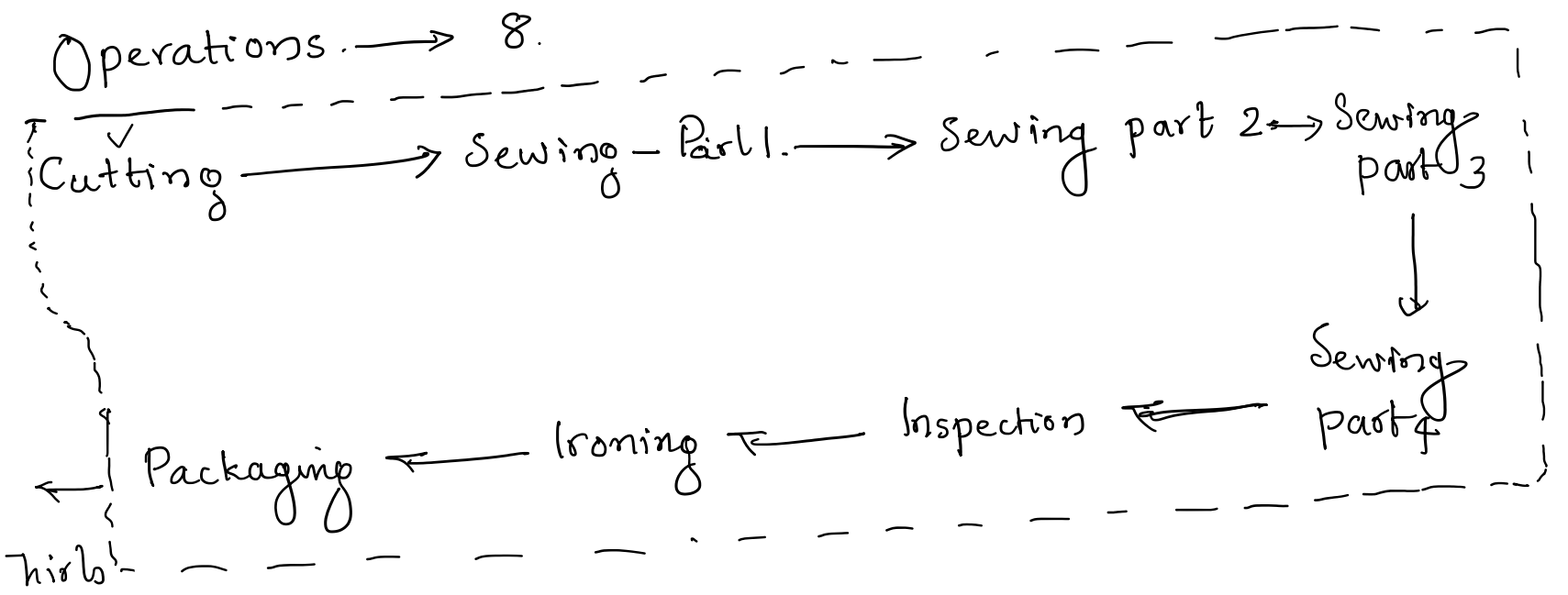
Monday, 1 April 2024 7:46 AM



Cutting → Rollout. → layer by layer. → (1.5 minutes / 4 yers)
60 layers. → 90 minutes

→ Cutting → 30 minutes. → for 60 layers. × 8 patterns
= 480 shirts.

Total time → 120 minutes → for 480 shirts.

Activity time for cutting. → $\frac{120}{480}$ = 0.25 minutes/shirt.

Direct labor content for cutting = 4 × 0.25 = 1 minute/shirt.

Capacity Analysis.

Operations.	Activity time (minutes/shirt)	Direct labor content (minutes/shirt)	Capacity. (shirts/minute)
1. Cutting.	0.25	1	$1/0.25 = 4$
2. Sewing – Part 1	3.9	3.9	$8/3.9 = 2.05$
3. Sewing – Part 2	2	2	$4/2 = 2.$
4. Sewing – Part 3	3	3	$8/3 = 2.6667$
5. Sewing – Part 4	1.5	1.5	$4/1.5 = 2.6667$
6. Inspection	1.8	1.8	$\frac{4}{1.8} = 2.222$
7. Ironing	1.7	1.7	$4/1.7 = 2.3529$
8. Packaging	1.75	1.75	$4/1.75 = 2.2857$
		Total direct labor content = 16.65 minutes/shirt.	

The process capacity = bottleneck capacity = Capacity of sewing – Part 2
= 2 shirts/minutes.
= 2 × 60 × 8
= 960 shirts/day.

Demand.

16000 shirts/month = $\frac{16000}{20}$ = 800 shirts/day.

The process capacity > Demand.
⇒ We can fulfill the demand.
⇒ No need of overtime work.

Flow rate = min { Process capacity, Demand } = 800 Shirts/day

Cycle time = $\frac{1}{\text{Flow rate}} = \frac{1}{800}$ = 0.6 minutes/shirts.