Solutions

2.1

- Roll $60/10 = 6.0$; fill $60 \times 2/16 = 7.5$; bake $60 \times 2/24 = 5.0$; cool $60 \times 4/30 = 8.0$ batches an hour.
- Bottleneck bake at 5.0; cycle time $60/5 = 12$ min.

2.2

- Roll $4/6 = 66.7\%$; fill $4/7.5 = 53.3\%$.
- Bake $4/5 = 80\%$; cool $4/8 = 50\%$.

2.3

- Flow time $10 + 16 + 24 + 30 = 80$ min $= 1.33$ h.
- $WIP = 4 \times 1.33 = 5.3$ batches.

2.4

- Bake becomes $60 \times 4/24 = 10$; the bottleneck moves to roll at 6.0.
- Gain $6.0 - 5.0 = 1.0$ batch an hour $= 90$ pastries an hour - not the doubling the oven's price suggests.

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