HW3 → Daniel

$\bar{x} = 21.6/25$

$s = 3.26 \quad (4.84)$

$\text{high} = 25$

$\text{low} = 11$

Probs. 14 (5)

1. TP report due: Tues. Nov. 27th at class
2. Same teammates
(b) The MPS is not feasible. Material F cannot be obtained within its 3 weeks lead time.

(c) Unless 400 units of F can be obtained within 2 weeks, taken from SS, CR from allocated, the MPS will have to be revised.

\[
2x + 2x = 4x = 400
\]
\[
x = 100
\]

⇒ The change to the MPS would be to move 100 units of A from week 5 to week 6.

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(a) Lot-for-Lot (LFL)

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\[ \text{Ord. cost} = 6 \times 3000 = \$18000 \]
\[ \text{Carry cost} = 0 \]
\[ \text{Total cost} = \$18000 \]

(b) EOQ

Annual demand = \( \text{Ave. weekly demand} \times \text{weeks/yr} \)
\[ = \frac{3400 \times 52}{6} \]
\[ = 29,466.67 \text{ units} \]

Annual carrying cost = \( 6 \times 52 = \$312/\text{unit/yr} \)

\[ \text{EOQ} = \sqrt{\frac{2DS}{C}} \]
\[ = \sqrt{\frac{2 \times 29466.67 \times 3000}{312}} \]
\[ = 752.8 \approx 753 \text{ units} \]
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**Setup cost:**
\[ \text{Setup cost} = 5 \times 3000 = \$15000 \]

**Carry cost:**
\[ \text{Carry cost} = \frac{5}{2} \text{(end inv.)} \times 6 \]
\[ = 2307 \times 6 \]
\[ = \$13842 \]

**Total cost:**
\[ \text{Total cost} = 15000 + 13842 = \$28842 \]

\[ \Rightarrow 1500 - 612 = 888 \]

EOQ \Rightarrow 210 \text{ lots (boxes) of 753 units each}

EOQ+ \Rightarrow 888 \Rightarrow 1 \text{ lot (full box) of 753 units}

\[ + (888 - 753) = 135 \text{ small boxes} \]
(a) Period order qty (POQ)

\[ EOQ = \frac{75 \times 2.8}{52} \]

\[ POQ = \frac{\text{# of weeks per yr}}{\text{# of orders per yr.}} \]

\[ = \frac{52}{\left(\frac{29,666}{67}\right)} \]

\[ = 1.3 \text{ weeks} \]

POQ = 1 week

POQ = 2 weeks

- Game % LFL
- Weeks

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\[ \sum = 2400 \]
8rd. cost = $3 \times 3100 = $9300

carrying cost = 6 \times 2000 = \frac{12000}{21,000} $21,000

\Rightarrow \text{POQ (2 weeks)} = $21,000
\text{POQ (1 week)} = $18,000

\text{LFL} = $18,000
\text{EOQ} = $28,842

\text{Best policy} = \min \left( 21,000, 18,000, \frac{18,000}{28,842} \right) = $18,000.

\Rightarrow \text{Use LFL or POQ = 1 week.}