

Let's use some different numbers, just for another problem example.

$d = 20$ units/day, std. dev. = 4 unit/day

$L = 10$ days

96% confidence

$Q = 600$ units

ROP (min level) = $D(\text{lead time}) + SS$

$D(\text{lead time}) = 10 * 20 = 200$

$SS = 1.75 * \text{Std dev}(\text{lead time}) \text{ ---- } \sqrt{10 * 4^2} = 12.65$

$SS = 1.75 * 12.65 = 22.14$

$ROP = 222$ unit

What is average inventory? $Q/2 + SS = 600/2 + 22 = 322$

Equal Order Period model

Max Level = $D(\text{lead time} + \text{review period}) + SS$

Review period is 30 days

$D(T+L) = (30+10) * 20 = 800$

$SS = 1.75 * \text{Std dev}(\text{lead time} + \text{review period}) \text{ -- } \sqrt{40 * 4^2} = 25.3$

$$SS = 1.75 * 25.3 = 44.271 \rightarrow 44$$

$$\text{Max Level} = 20 * (30+10) + 44 = 800 + 44 = 844$$

$$\text{If we have 200 on hand (and nothing on order) then } q = 844 - 200 = 644$$

$$\text{What is average inventory? } D(T)/2 + SS = (20 * 30)/2 + 44 = 344$$