MSCI 334 (W23) Formula sheet for mid-term exam

$EOQ = \sqrt{\frac{2K\lambda}{h}}$, $G(Q) = \lambda c + \frac{K\lambda}{Q} + \frac{1}{2}Qh$, $h = Ic$

$EPQ = \sqrt{\frac{2K\lambda}{h'}}$, $h' = h(1 - \frac{\lambda}{P})$, $T = Q/\lambda$, $T1 = Q/P$, $T2 = T - T1$

$F_i = F_{i-1} + (c_{i-1} - c_i)q_i$, $F_0 = 0$, $Q_i = \sqrt{\frac{2\lambda(K+F_i)}{Ic_i}}$

$Q_i^* = mEOQ_i$, $m = \frac{C}{\sum_i c_i EOQ_i}$

$T^* = \sqrt{\frac{2\sum_{j=1}^n K_j}{\sum_{j=1}^n h'_j \lambda_j}}$, $T \geq \frac{\sum_{j=1}^n S_j}{1-\sum_{j=1}^n (\lambda_j/P_j)} = T_{min}$

$F(Q^*) = \frac{c_u}{c_o + c_u}$

$G(Q,R) = h\left(\frac{Q}{2} + R - \lambda\tau\right) + \frac{K\lambda}{Q} + \frac{p\lambda n(R)}{Q}$, $Q = \sqrt{\frac{2\lambda[K+pn(R)]}{h}}$, $1 - F(R) = \frac{Qh}{p\lambda}$, $n(R) = \sigma L\left(\frac{R-\mu}{\sigma}\right) = \sigma L(z)$

$1 - \frac{n(R)}{Q} = \beta$, $F(R) = \alpha$

$Q = \frac{n(R)}{1-F(R)} + \sqrt{\frac{2K\lambda}{h} + \left(\frac{n(R)}{1-F(R)}\right)^2}$, $n(R) = (1-\beta)Q$, $L(z) = \frac{(1-\beta)Q}{\sigma}$

Lead time demand (fixed lead time): $N[\lambda\tau\,, \nu^2\tau\,]$

Lead time demand (variable lead time): $N[\lambda\mu_\tau\,, \mu_\tau\nu^2 + \lambda^2\sigma_\tau^2]$