Table 12.17 *Summary of Operating Characteristics for the (M/M/1) Queue*

	$(M \mid M \mid 1):(GD \mid N \mid \infty)^a$	$(M \mid M \mid 1):(GD \mid \infty \mid \infty)^b$
L_q	$\dfrac{\rho^2[1 - \rho^N - N\rho^{N-1}(1 - \rho)]}{(1 - \rho)(1 - \rho^{N+1})}$	$\dfrac{\rho^2}{1 - \rho}$
L	$\dfrac{\rho[1 - \rho^N - N\rho^N(1 - \rho)]}{(1 - \rho)(1 - \rho^{N+1})}$	$\dfrac{\rho}{1 - \rho}$
W_q	$\dfrac{\rho[1 - \rho^N - N\rho^{N-1}(1 - \rho)]}{\mu(1 - \rho)(1 - \rho^N)}$	$\dfrac{\rho}{\mu(1 - \rho)}$
W	$\dfrac{1 - \rho^N - N\rho^N(1 - \rho)}{\mu(1 - \rho)(1 - \rho^N)}$	$\dfrac{1}{\mu(1 - \rho)}$
U	$\dfrac{\rho(1 - \rho^N)}{1 - \rho^{N+1}}$	ρ
$\bar{\lambda}$	$\dfrac{\lambda(1 - \rho^N)}{1 - \rho^{N+1}}$	λ
P_0	$\dfrac{1 - \rho}{1 - \rho^{N+1}}$	$1 - \rho$

[a] $\rho \neq 1$.
[b] $\rho < 1$.

Table 12.16 *Summary of Operating Characteristics for the (M/M/c) Queue*

	$(M \mid M \mid c):(GD \mid N \mid \infty)^a$	$(M \mid M \mid c):(GD \mid \infty \mid \infty)^b$
L_q	$\dfrac{\rho(c\rho)^c P_0}{c!(1 - \rho)^2}[1 - \rho^{N-c+1} - (N - c + 1)(1 - \rho)\rho^N]$	$\dfrac{\rho(c\rho)P_0}{c!(1 - \rho)^2}$
L	$L_q + \dfrac{(c\rho)^c(1 - \rho^{N-c+1})P_0}{(c - 1)!(1 - \rho)} + \sum_{n=0}^{c-1} nP_n$	$L_q + \dfrac{\lambda}{\mu}$
W_q	$\dfrac{(c\rho)^c[1 - \rho^{N-c+1} - (N - c + 1)(1 - \rho)\rho^N]}{c!c\mu(1 - \rho)^2(1 - P_N)} P_0$	$\dfrac{(c\rho)P_0}{c!c\mu(1 - \rho)^2}$
W	$W_q + \dfrac{1}{\mu}$	$W_q + \dfrac{1}{\mu}$
U	$\rho(1 - P_N)$	ρ
$\bar{\lambda}$	$\lambda(1 - P_N)$	λ
P_0	$\left[\dfrac{(c\rho)^c(1 - \rho^{N-c+1})}{c!(1 - \rho)} + \sum_{n=0}^{c-1} \dfrac{(c\rho)^n}{n!}\right]^{-1}$	$\left[\dfrac{(c\rho)^c}{c!(1 - \rho)} + \sum_{n=0}^{c-1} \dfrac{(c\rho)^n}{n!}\right]^{-1}$

[a] $\rho \neq 1$.
[b] $\rho < 1$.