n	20		100		∞	
k	10	∞	10	∞	10	∞
$\frac{\lambda_1}{k-1}$	1.084	1.081	1.016	1.015	1	1
$\frac{\lambda_2}{2(k-1)}$	1.176	1.170	1.032	1.031	1	1
$\frac{\lambda_3}{8(k-1)}$	1.275	1.265	1.048	1.046	1	1
$\frac{\lambda_4}{48(k-1)}$	1.384	1.369	1.065	1.062	1	1

These results indicate that the degree of approximation of $-2 \log \lambda$ to the χ^2 law with $k - 1$ degrees of freedom is mainly dependent on n, and is for all practical purposes independent of k when n is moderately large.

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ON TCHEBYCHEFF APPROXIMATION FOR DECREASING FUNCTIONS

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The problem of estimating the value of a probability by means of moments of a distribution function has been studied by Tchebycheff, Pearson, Camp, Meidel, Narumi, Markoff, and others. Approximations without regard to the nature of the function have not been very close. However the closeness of the approximation has been materially improved by placing certain restrictions on the nature of the distribution function.[1] For example, when $y = f(x)$ is an increasing function from $x = 0$ to $x = c\sigma$ and a decreasing function beyond that point, the corresponding probability function $y = P_x$ is concave downward from $x = 0$ to $x = c\sigma$ and concave upward beyond that point. Here P_x is the probability that a variate taken at random from the distribution will fall at a distance at least as great as x from the origin. Beginning with these conditions I have established the inequality[1]

[1] B. H. Camp, "A New Generalization of Tchebycheff's Statistical Inequality", *Bulletin of the American Mathematical Society*, Vol. 28, (1922), pp. 427–32.
C. D. Smith, "On Generalized Tchebycheff Inequalities in Mathematical Statistics," *The American Journal of Mathematics*, Vol. 52, (1930), pp. 109–26.