=

{a,b,c,…,i} are coefficient (elements of Z)

{x,y,z} are variable names

http://www.itl.nist.gov/div898/handbook/pmc/section2/pmc22.htm#Operating Characteristic (OC)

Process capability compares the output of an *in-control* process to the specification limits by using *capability indices*. The comparison is made by forming the ratio of the spread between the process specifications (the specification "width") to the spread of the process values, as measured by 6 process standard deviation units (the process "width").

USL / LSL upper and lower specification limits

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| --- |
|  |
| *Definitions of various process*  *capability indices*  The *Cp, Cpk, and Cpm* statistics assume that the population of data values is normally distributed. Assuming a two-sided specification, if muand sigmaare the mean and standard deviation, respectively, of the normal data and USL, LSL, and T are the upper and lower specification limits and the target value, respectively, then the population capability indices are defined as follows:  pareto charts and cause and effect diagrams | Cp = (USL - LSL)/6*sigma  Cpk = MIN[(USL-mu)/(3*sigma), (mu-LSL)/(3*sigma)]  Cpm = (USL-LSL)/{6*SQRT(s**2 + (mu-T)**2)} |