



Math for the people, by the people.

## index of inequalities

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### **Inequalities for reals and complex numbers**

1. The triangle inequality. If  $a, b, c$  are real numbers, then

$$||a - c| - |b - c|| \leq |a - b| \leq |a - c| + |b - c|.$$

2. Nesbitt's inequality
3. <http://planetmath.org/YoungInequality> Young's inequality
4. Bernoulli's inequality
5. Schur's inequality
6. quadratic inequality

### **Inequalities in an inner product space**

1. <http://planetmath.org/CauchySchwarzInequality> Cauchy-Schwarz-Bunyakovsky inequality
2. Bessel inequality
3. Peetre's inequality

### **Inequalities for sequences**

1. Shapiro inequality
2. MacLaurin's inequality
3. Carleman's inequality
4. arithmetic-geometric-harmonic means inequality and the general means inequality
5. Minkowski inequality
6. Chebyshev's inequality and the rearrangement inequality
7. Muirhead's theorem

### **Inequalities for functions**

1. Jordan's inequality for  $\sin$
2. Jensen's inequality
3. Gronwall's inequality
4. Hölder inequality
5. Young's inequality
6. Wirtinger's inequality

### **Geometric inequalities**

1. Hadwiger-Finsler inequality
2. Weizenböck's inequality
3. Brunn-Minkowski inequality

### **Inequalities in number theory**

1. <http://planetmath.org/SummedNumeratorAndSummedDenominatorinequality> for fractions
2. Liouville approximation theorem

### **Matrix inequalities**

1. <http://planetmath.org/SchursInequality> Schur's inequality
2. Hadamard's inequality
3. Wielandt-Hoffman theorem
4. Weyl's inequality
5. Frobenius inequality

### **Inequalities for cardinal numbers**

1. Cantor's theorem
2. König's theorem

### **Inequalities for random variables**

1. Markov's inequality
2. Kolmogorov's inequality
3. <http://planetmath.org/ChebyshevsInequality2>Chebyshev's inequality

### **Inequalities in order theory**

1. distributive inequalities