



Interval Partitions

1 Why

We partition a real interval into interval pieces.

2 Definition

An *interval partition* is a finite partition of a closed real interval.

An interval partition is *regular* if all pieces except the largest are closed on the left and open on the right and the largest is closed.

Any regular interval partition with $n - 1$ elements can be represented by $n + 1$ real numbers: the endpoints of each interval. We call these the *cut points* of the interval partition.

2.1 Notation

Let R denote the set of real numbers. Let $[a, b]$ a closed interval in R with endpoints $a, b \in R$.

Consider a regular partition. of $[a, b]$ with $n - 1$ pieces. We can identify its cut points:

$$a = a_1 < a_2 < \dots a_{n-1} < a_n = b.$$

The pieces of the partition are:

$$[a_1, a_2), [a_2, a_3), \dots, [a_{n-2}, a_{n-1}) [a_{n-1}, a_n].$$