

# How Grid Responds to Non-Finite Values

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It is possible to include non-finite values, `NA`, `NaN`, `Inf`, and `-Inf`, in specifications of locations and sizes in `grid` functions. This document describes how `grid` responds to non-finite values in different cases.

## viewports

Non-finite values are not permitted in the location, size, or scales of a viewport. Viewport scales are checked when a viewport is created. It is very hard to be certain that locations and sizes are not non-finite when the viewport is created so this is only checked when the viewport is pushed. Non-finite values result in error messages.

## lines, segments, rectangles, text, points, circles

For all of these primitives, non-finite values for locations or sizes result in the corresponding primitive not being drawn. The following image provides a simple demonstration. Each primitive is drawn at seven x-locations, with the fourth location made non-finite (as indicated by a grey "NA").

segments				NA			
text	a	b	c	NA	e	a	b
lines	_____			NA	_____		
rectangles	□	□	□	NA	□	□	□
circles	○	○	○	NA	○	○	○
points	○	○	○	NA	○	○	○

**lineTo**

A line segment is only drawn if the previous location and the new location are both not non-finite.

**polygon**

A non-finite value breaks the polygon into two separate polygons. NOTE that this break happens within the current polygon as specified by the id argument. All polygons with the same id receive the same gp settings.

**arrows**

An arrow head is only drawn if the first or last line segment is drawn.

The following image demonstrates the behaviour of these primitives where x- and y-locations are seven equally-spaced locations around the perimeter of a circle. In the top-left figure, all locations are not non-finite. In each of the other figures, two locations have been made non-finite (indicated in each case by grey text).

