Piecewise Functions

10th Grade

Different rules on different intervals, and where the graph breaks.

A piecewise function applies a different rule depending on the input.

1. **READ THE CONDITIONS**
   Each rule applies only on its own interval.

2. **PICK THE RIGHT PIECE**
   To evaluate, check which interval the input falls in first.

3. **GRAPH EACH PIECE SEPARATELY**
   Only over its own interval, not the whole axis.

4. **MARK THE ENDPOINTS**
   Filled circle if the endpoint is included, open if not.

WORKED

$f(x) = x + 1$ for $x < 2$; $f(x) = x^2$ for $x \geq 2$
$f(0) = 1$ (first piece)
$f(3) = 9$ (second piece)

Absolute value is a piecewise function in disguise: x for $x \geq 0$, and $-x$ for $x < 0$.