Riesketcher
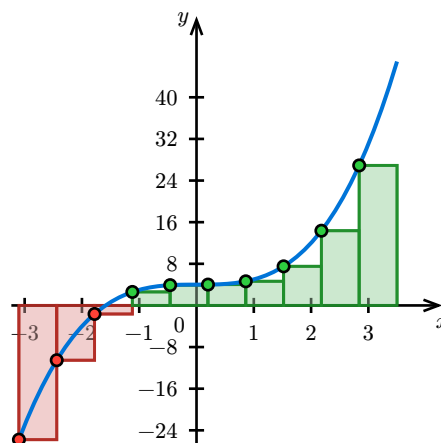
A package to draw Riemann sums (and their plots) of a function with CeTZ.

```
#import "@preview/riesketcher:0.2.2": riesketcher
```

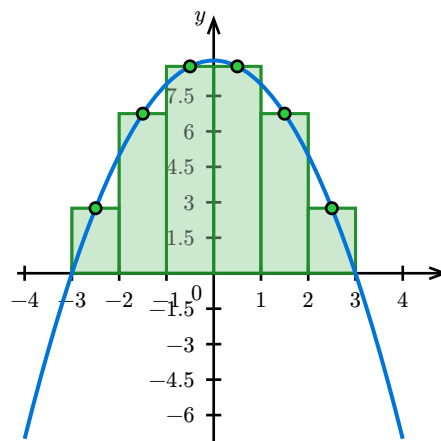## Examples

Left-Hand Riemann sum

```
riesketcher(
    x => calc.pow(x, 3) + 4,
    method: "left",
    start: -3.1,
    end: 3.5,
    n: 10,
    plot-x-tick-step: 1,
)
```


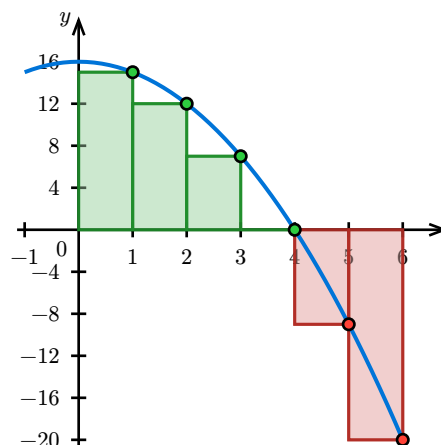### Midpoint Riemann sum

```
riesketcher(
    x => -calc.pow(x, 2) + 9,
    method: "mid",
    domain: (-4, 4),
    start: -3,
    end: 3,
    n: 6,
    plot-x-tick-step: 1,
)
```


Right-method Riemann sum

```
riesketcher(
    x => 16 - x * x,
    method: "right",
    end: 6,
    n: 6,
    domain: (-1, auto),
    plot-x-tick-step: 1,
)
```

Method parameters

riesketcher
- riesketcher()

riesketcher
Draw a Riemann sum of a function, and optionally plot the function.

Parameters

```
riesketcher(
    fn: function ,
    start: number ,
    end: number ,
    domain: array ,
    n: number ,
    y-scale: number ,
    method: string ,
    transparency: number ,
    dot-radius: number ,
    plot: boolean ,
    plot-grid: boolean ,
    plot-x-tick-step: number ,
    plot-y-tick-step: number ,
    positive-color: color ,
    negative-color: color ,
    plot-line-color: color ,
    size
)
```

fn   `function`

The function to draw a Riemann sum of.

start   `number`

Where to start drawing bars.

Default: `0`

end   `number`

Where to end drawing bars.

Default: `10`

domain   `array`

Tuple of the domain of fn. If a tuple value is auto, that value is set to start/end.

Default: (`auto`, `auto`)

n   `number`

Number of bars

Default: `10`

y-scale   `number`

Y scale of bars.

Default: `1`

method   `string`

Where points are derrived from. Can be "left", "mid"/"midpoint", or "right".

Default: `"left"`

transparency   `number`

Transparency fill of bars.

Default: `40%`

dot-radius   `number`

Radius of dots.

Default: `0.15`

plot   `boolean`

Whether to add plot of the function.

Default: `true`

plot-grid   `boolean`

Show grid on plot.

Default: `false`

plot-x-tick-step   `number`

X tick step of plot.

Default: `auto`

plot-y-tick-step   `number`

Y tick step of plot.

Default: `auto`

positive-color `color`

Color of positive bars.

Default: `color.green`

negative-color `color`

Color of negative bars.

Default: `color.red`

plot-line-color `color`

Color of plotted line.

Default: `color.blue`

size

Default: `(5, 5)`