Chapter 3: Limits

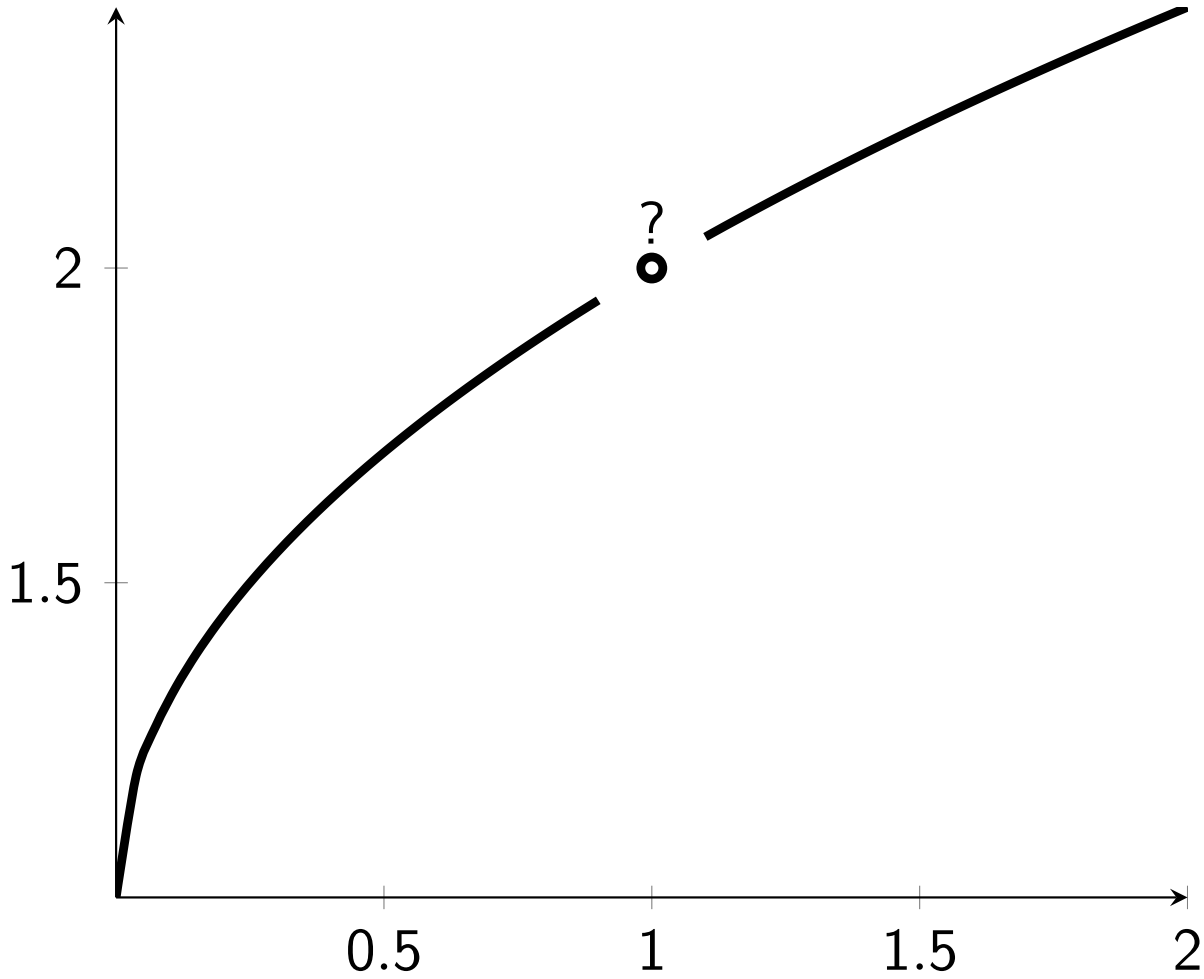
What do you get for $\frac{x-1}{\sqrt{x}-1}$ when $x = 1$?

What about when x is close to 1?

We call this a limit: a single number L so that when x is close to 1, y is close to L.

Here is part of the graph of $\frac{x-1}{\sqrt{x}-1}$.

The grapher got mad when I asked it about $x = 1$.



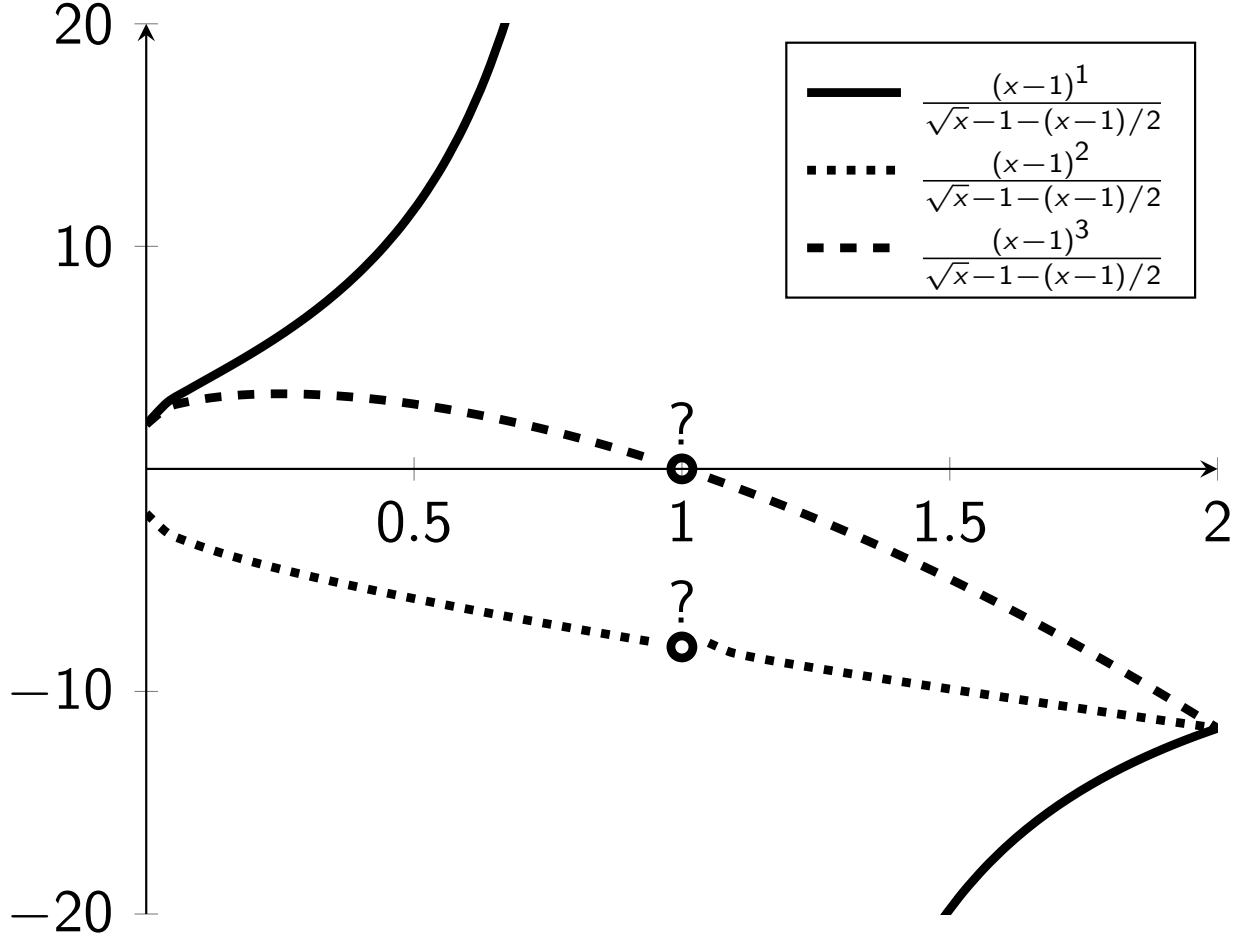
Chapter 3: Bonus

What happens when x is nearly 1 in $\frac{(x-1)^1}{\sqrt{x}-1-(x-1)/2}$?

What happens when x is nearly 1 in $\frac{(x-1)^2}{\sqrt{x}-1-(x-1)/2}$?

What happens when x is nearly 1 in $\frac{(x-1)^3}{\sqrt{x}-1-(x-1)/2}$?

Plots:


20
10
−10
−20
0.5
1
1.5
2
?
?
$\frac{(x-1)^1}{\sqrt{x}-1-(x-1)/2}$
$\frac{(x-1)^2}{\sqrt{x}-1-(x-1)/2}$
$\frac{(x-1)^3}{\sqrt{x}-1-(x-1)/2}$