Bonn International School

Teaching for understanding

Lorraine Heinrichs

Facilitator

- At Bonn International School since 1999
- Curriculum developer for IB
- Principal Moderator for Maths HL for the IB
- Workshop leader since 2002

Introductions

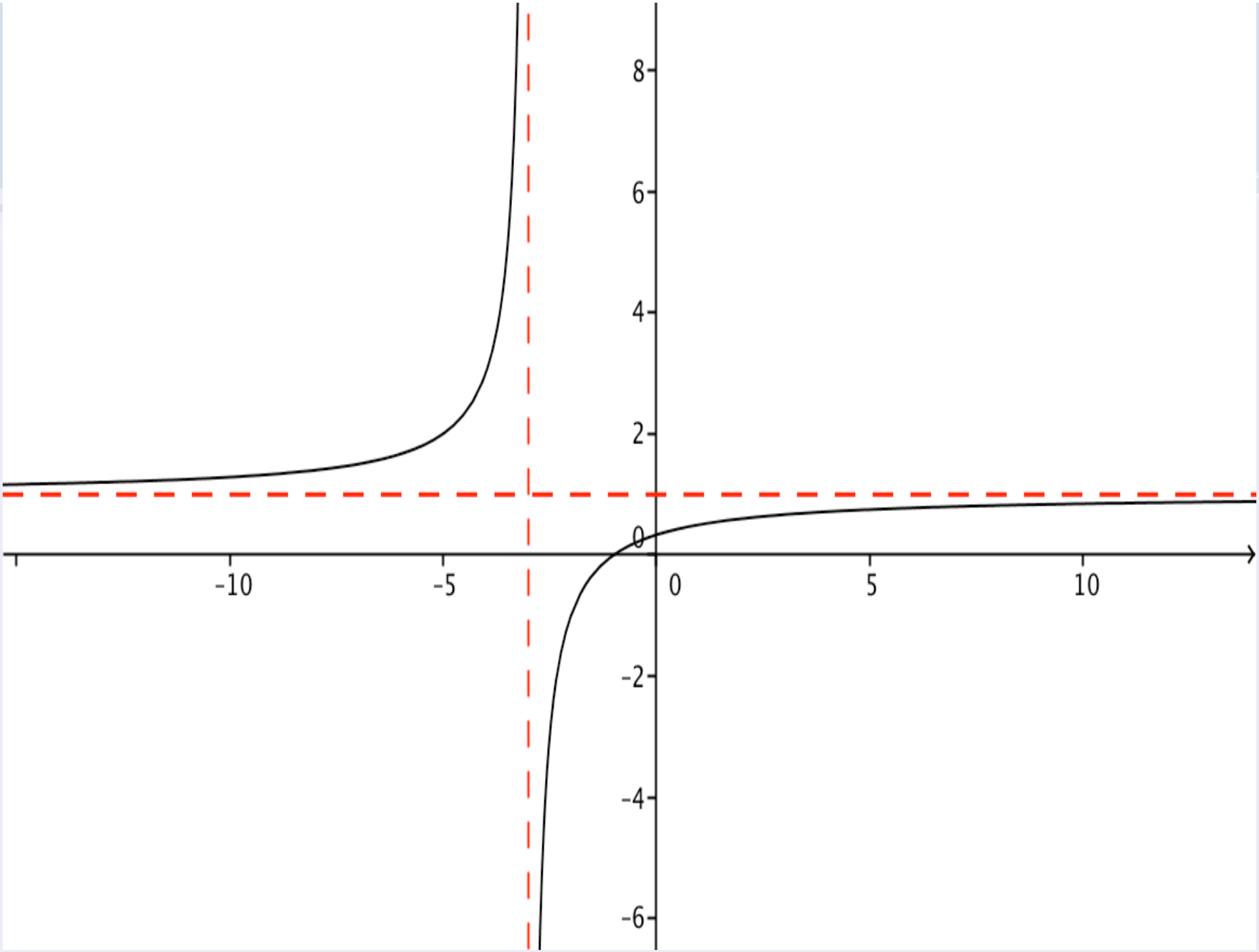
- Brief Introductions (Auf Deutsch geht's auch)
  - Experience with technology?
  - GRT? Casio? TI Nspire? CAS?
  - Geogebra?
  - Geometers' Sketchpad?

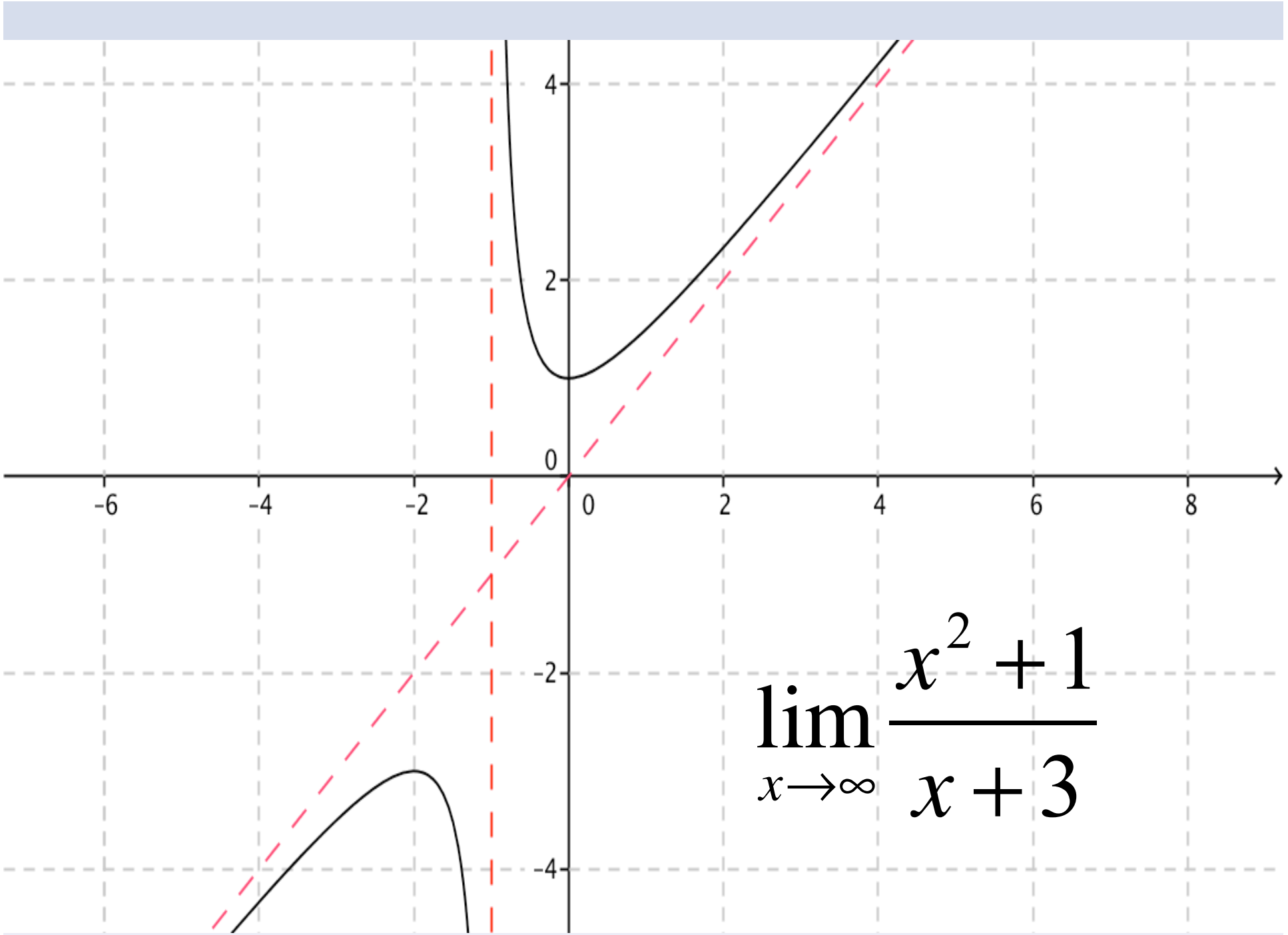
Why the fuss??

- Technology allows us to dig deeper when explaining concepts
- Digital natives vs. digital immigrants
- Makes lessons more interesting

Activity – Low impact
Visible thinking

- Form Pairs
- Position yourselves so one sees the screen and the other one doesn’t
- Explain what you see using Mathematical terminology


8
6
4
2
0
-2
-4
-6
-10
-5
0
5
10


4
2
0
-2
-4
-6
-4
-2
0
2
4
6
8
$\lim_{x\to\infty} \frac{x^2+1}{x+3}$

Using Geogebra

Calculus

- Differentiation – first principles
- What is the differential function
- Integration

Understanding derivatives

- Using and creating Dynamic Geometry files to compare average change to instantaneous change.
- Define derivative at a point
- Questions to consolidate knowledge from Text book

Idea of slope of a function

- file://localhost/Users/lh0903/Desktop/ATTL/Maths DP/Calculus/Activity 3_slider.ggb

Derivatives from first principles

- file://localhost/Users/lh0903/Desktop/ATTL/Maths DP/Calculus/Activity 3.ggb

Plotting derived function

- file://localhost/Users/lh0903/Desktop/Düsseldorf/Plotting derived function.ggb

Integration and Riemann Sums

- file://localhost/Users/lh0903/Desktop/Düsseldorf/Riemann sums.ggb

Questions ?