MAT137Y1 – LEC0501 *Calculus!*

CURVE SKETCHING



December 6th, 2018

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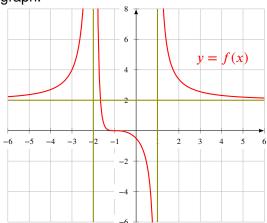
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Backwards graphing

We know that $f(x) = \frac{P(x)}{Q(x)}$ where P and Q are two polynomials. Here is its graph:



Recover f(x).

Slant asymptote

Unexpected asymptotes

Find the two asymptotes of the function

 $F(x) = x + \sqrt{x^2 + x}$

Study the behavior at infinity of

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$$f(x) = \frac{x^2 + 3}{x + 1}$$

Hyperbolic tangent¹

The function tanh, defined by

$$\tanh x = \frac{e^x - e^{-x}}{e^x + e^{-x}},$$

is called the "hyperbolic tangent".

- Find its two asymptotes
- Study its monotonicity
- Study its concavity
- 4 With this information, sketch its graph.

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¹This slide was not covered, but that's a good exercise for you to practice.