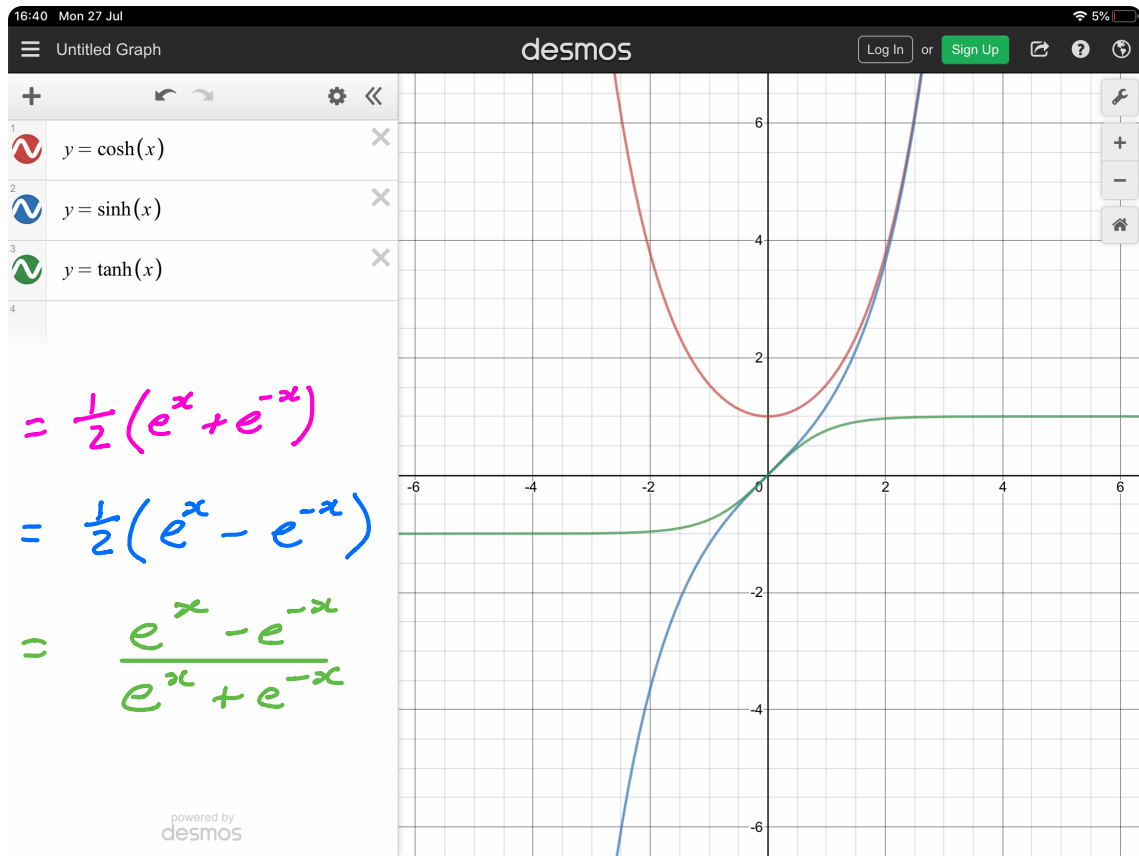


Hyperbolic Functions

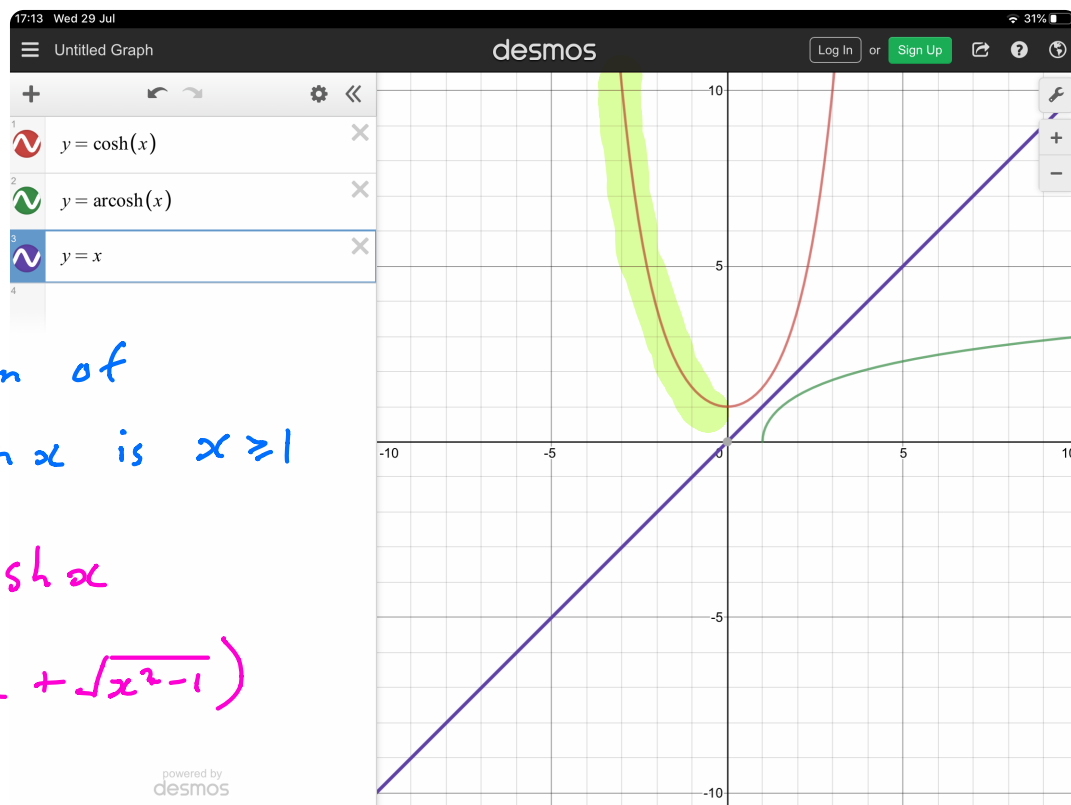
$$\cosh x = \frac{1}{2}(e^x + e^{-x})$$
$$\sinh x = \frac{1}{2}(e^x - e^{-x})$$
$$\tanh x = \frac{e^x - e^{-x}}{e^x + e^{-x}}$$

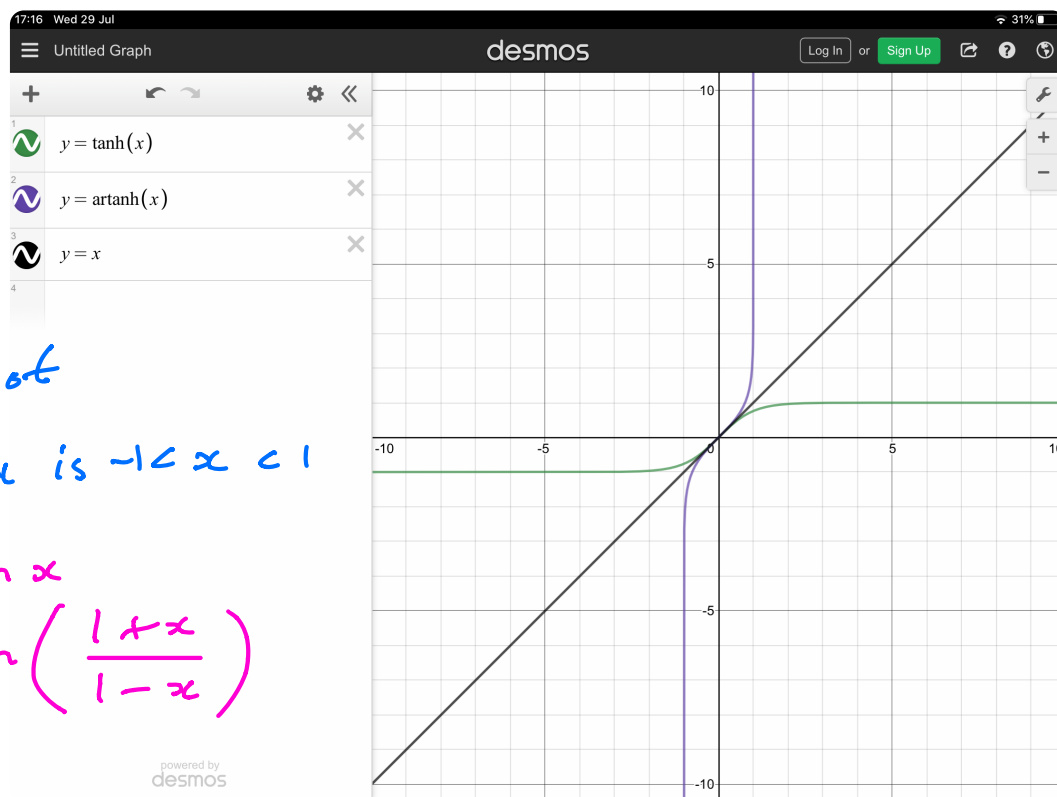
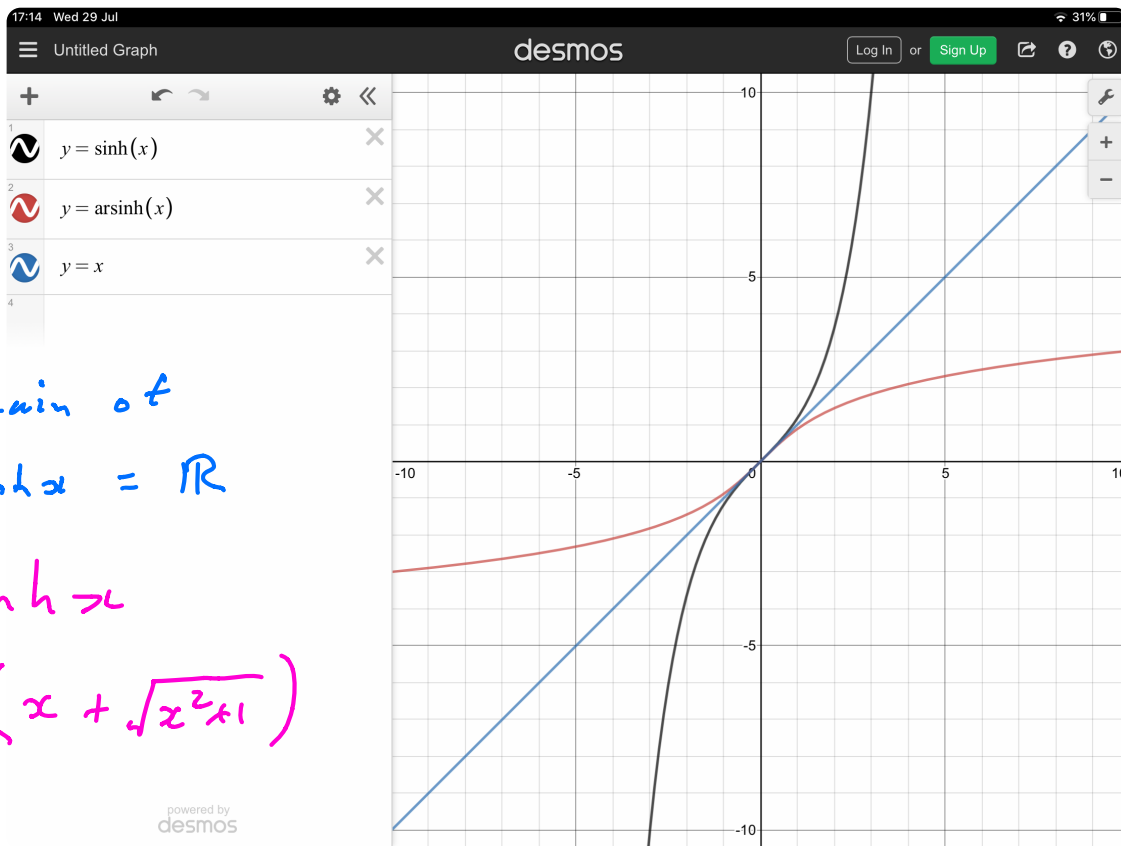


Inverse Hyperbolic Functions

Domain of
 $\operatorname{arcosh} x$ is $x \geq 1$

$$\operatorname{arcosh} x = \ln(x + \sqrt{x^2 - 1})$$





When functions have inverse functions

the domain of one is the range of the other.

Their graphs are reflections of each other in the line $y = x$