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Exercise 1. Recall the addition formula for sinh:

$$\forall x, y \in \mathbb{R}, \ \sinh(x+y) = \cosh x \sinh y + \cosh y \sinh x \quad \checkmark$$
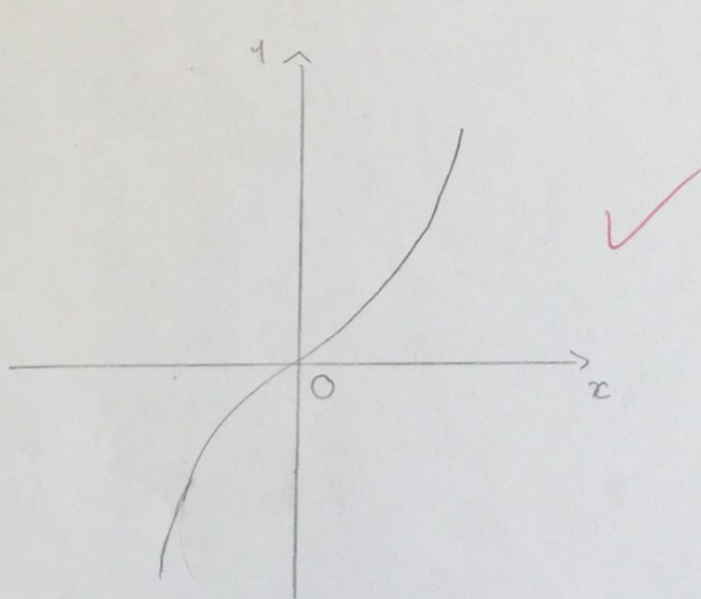
Exercise 2. Fill in the blanks:

The domain of arccosh is: $[1 ; +\infty)$ $\checkmark$

The domain of arcsinh is: $\mathbb{R}$ $\checkmark$

The formula that defines sinh is: $\forall x \in \mathbb{R}, \ \sinh(x) = \dfrac{e^x - e^{-x}}{2}$ $\checkmark$

The range of cosh is: $\cosh(\mathbb{R}) = [1 ; +\infty)$ $\checkmark$
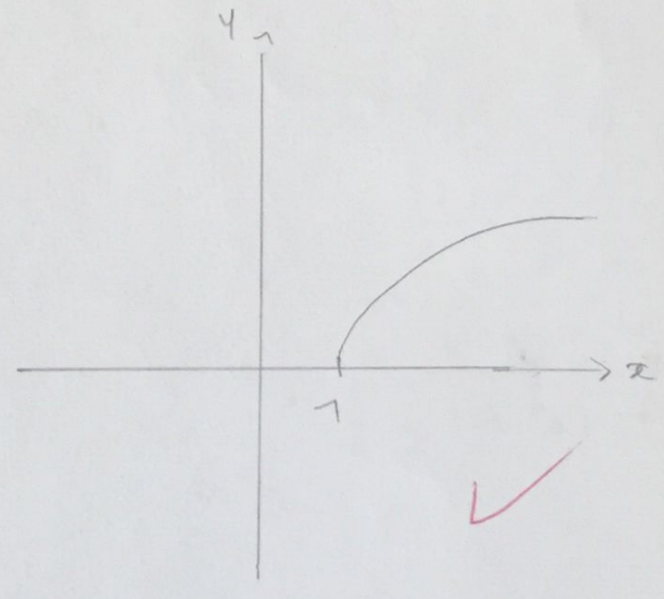
Exercise 3. Recall the following transformation of sum into product:

$$\forall x, y \in \mathbb{R}, \ \cosh(x) + \cosh(y) = 2 \cosh\left(\frac{x+y}{2}\right) \cosh\left(\frac{x-y}{2}\right) \quad \checkmark$$

Exercise 4. Sketch the graph of sinh and of arccosh (on two separate graphs).

sinh

Arccosh