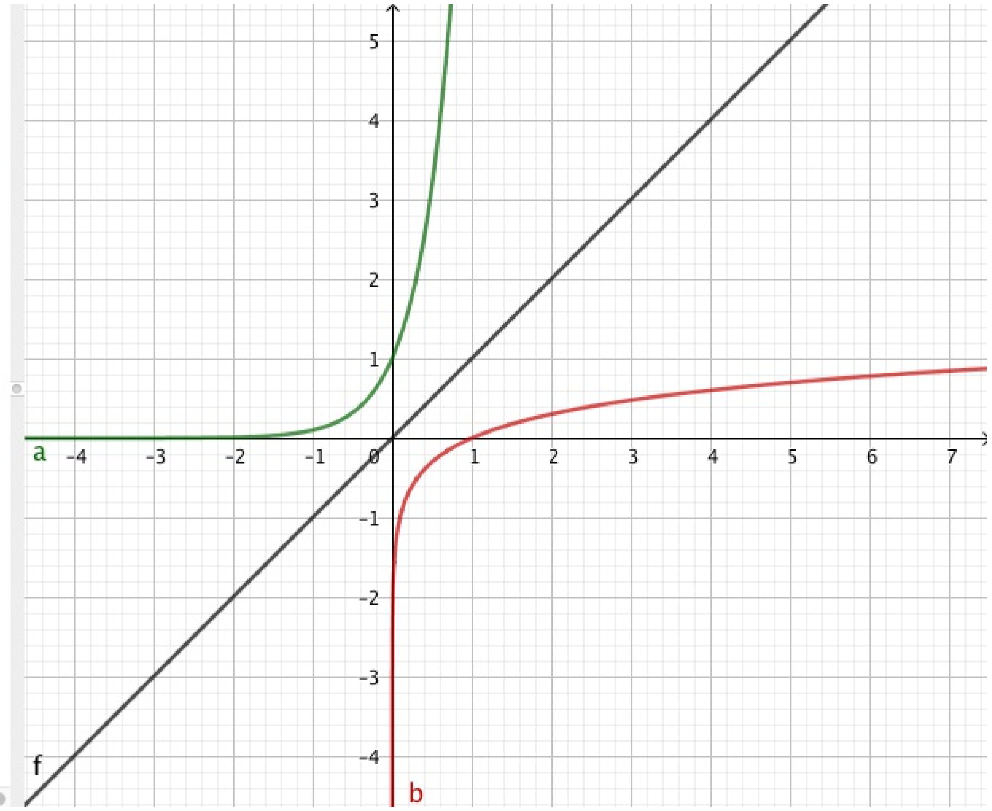
08.11.19

Droite

- $f: y = x$

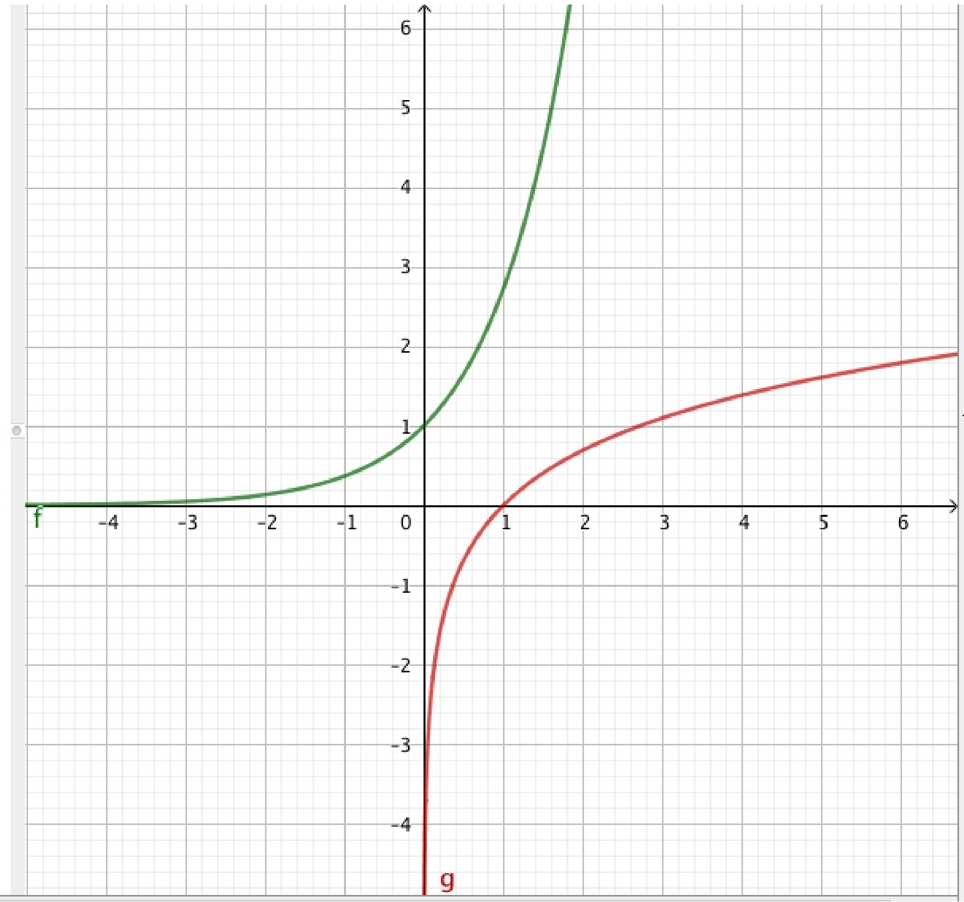
Fonction

- $a(x) = 10^x$
- $b(x) = \log_{10}(x)$



Fonction

- $f(x) = e^x$
- $g(x) = \ln(x)$
- $h(x) = 10^x$



Propriétés des log

Comment calculer avec la $\boxed{TI}$ par exemple

$$\log_{17}(108) \quad ?$$

$a, b \in \mathbb{R}_+^* - \{1\}$

$$\log_a(x) = \log_a\left(b^{\log_b(x)}\right) = \log_b(x) \cdot \log_a(b)$$

$$x = b^{\log_b(x)}$$

Donc $\boxed{\log_b(x) = \dfrac{\log_a(x)}{\log_a(b)}}$

$$\log_{17}(108) = \frac{\log(108)}{\log(17)} = 1.652586889351922$$

$$17^{1,652586889351922} \simeq 108$$

l) $\log_5(0,04) = \log_5\left(\frac{4}{100}\right) = \log_5\left(\frac{1}{25}\right) = \log_5\left(\frac{1}{5^2}\right)$

$= -\log_5(5^2) = -2$

m) $\log_3(\sqrt[4]{27}) = \log_3\left(3^{3/4}\right) = \frac{3}{4}$

n) $\ln(e^2) = 2$

$$\boxed{\begin{array}{ll} \log_e & \ln \\ \log_{10} & \log \end{array}}$$

k) $\log_{1/8}(64) = \log_{\frac{1}{8}}\left(8^2\right) = \log_{\frac{1}{8}}\left(\left(\frac{1}{8}\right)^{-2}\right) = -2$