Gymnázium, Brno, Slovanské nám. 7

WORKBOOK

http://agb.gymnaslo.cz

Subject: **Mathematics**

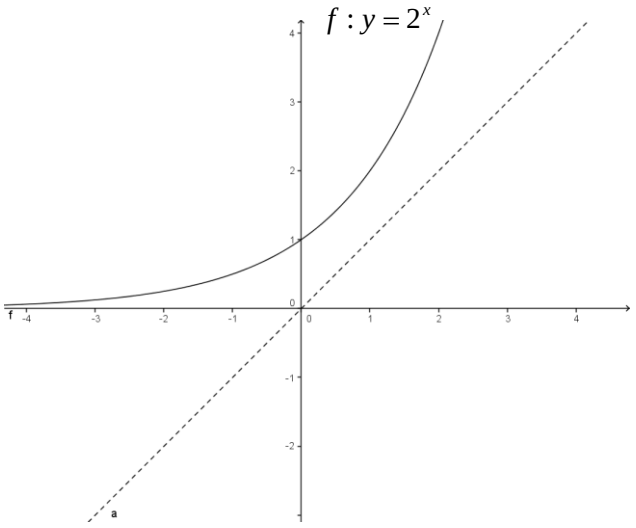
Student: .....

School year: ...../.....

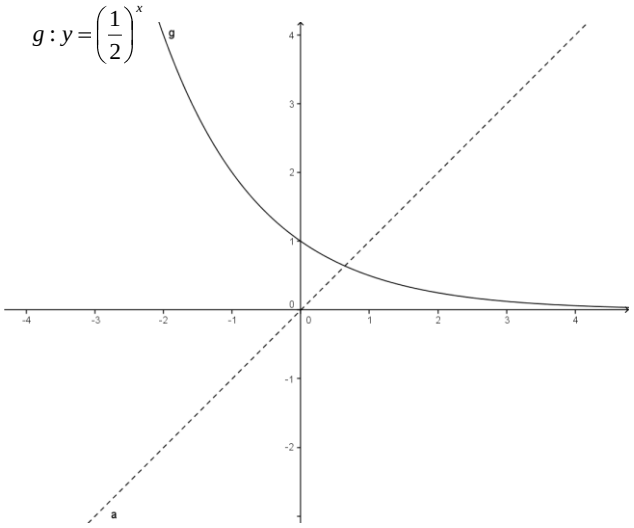
Topic: Logarithm function

Draw the inverse function of the exponential functions f and g.

a) $f : y = 2^x$



b) $g : y = \left(\frac{1}{2}\right)^x$



Functions f^{-1} is a base-*2* logarithm function and g^{-1} a base-$\frac{1}{2}$ logarithm function

(logaritmická funkce o základu 2 a logaritmická funkce o základu $\frac{1}{2}$)

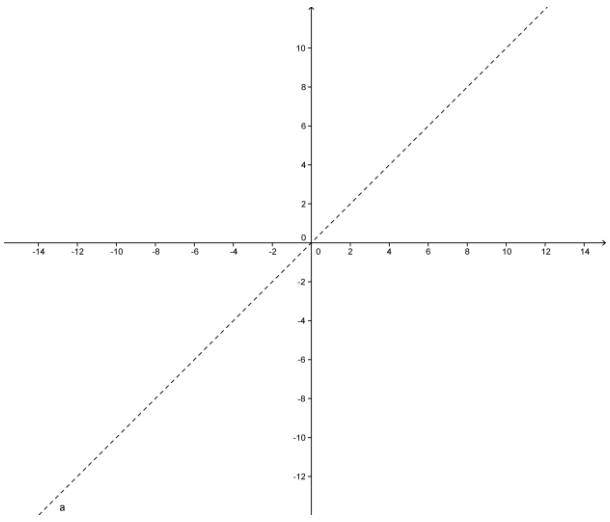
The base-a logarithm function is the inverse function of the exponential function a^x,

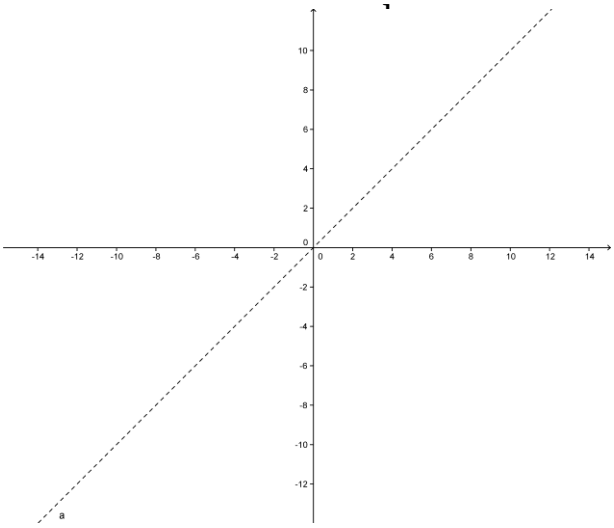
$$a \in R^+, a \neq 1$$

Description: $y = \log_a x$

Draw graphs of logarithm functions a) $y = \log_3 x$ $y = \log_4 x$ $y = \log_{10} x$

b) $y = \log_{\frac{1}{3}} x$ $y = \log_{\frac{1}{4}} x$





Write some attributes of $y = \log_a x \quad a \in R^+, a \neq 1$ for

a > 1	0 < a < 1

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1. Decide, which of the following propositions are true of false:

a) $\log_3 4 < \log_3 7$

b) $\log_{0.5} 6 \leq \log_{0.5} 8$

c) $\log_3 6 > \log_{\frac{1}{3}} 6$

d) $\log_{0.4} 7 < \log_{0.4} 5$

2. Decide, which of the following numbers are positive or negative:

a) $\log_{0,5} 5$ b) $-\log_{12} 11$ c) $\log_9 10$

3. Find a domain of function:

a) $y= \log_{10}(x+2)$ b) $y = \log_4 \sqrt{x-3}$ c) $y = \sqrt{\log_5 x}$