



EXPONENTIAL FUNCTION

(School)

Project sponsors



Exponential function

1. Compare tables A and B:

Table A

x	$f(x)$
0	1.7
1	2.3
2	2.9
3	3.5
4	4.1

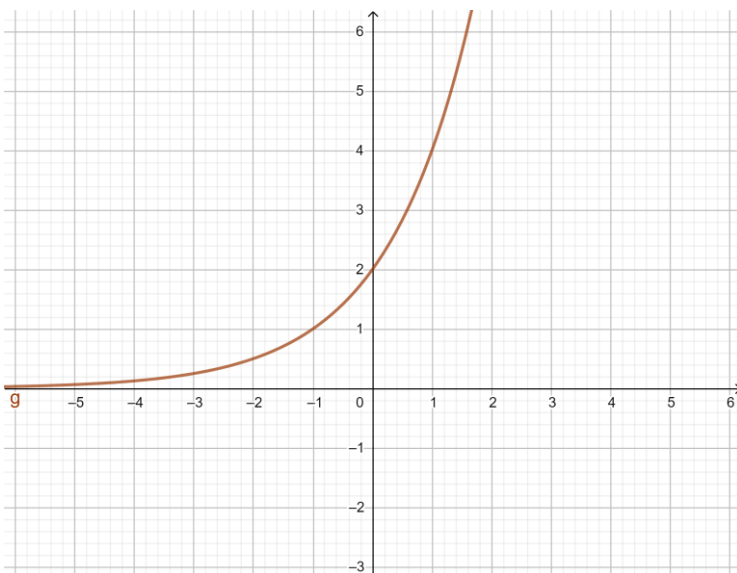
Table B

x	$g(x)$
0	1.7
1	3.4
2	6.8
3	13.6
4	27.2

For each of the function f and g determine from the tables whether they are linear, quadratic, or exponential.

Explain the answer.

2. The graph shows the exponential function f .



Mark whether the statements are true or false and explain your answer:

Statement	True/False	Explanation
Point (1, - 1) belongs to the graph of function f .		
Point (1, 4) belongs to the graph of function f .		
When x is increased by 1, the function value doubles.		
When x is increased by 1, the value of the function is halved.		

3. Maja installed an app that measures how many meters she crosses a day. The first day she passed 2 000 m. She decided to increase the distance by 10% each day. Fill out the table to show how the daily Maja's journey changes through the week days.

Day	1	2	3	4	5	6	7
Meters	2 000						

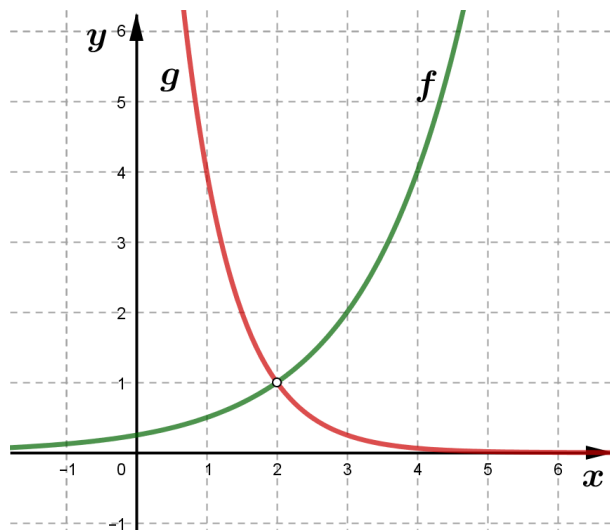
4. The function f is given by a mapping rule $f(x) = 4 \cdot 0.5$

a) Draw a function graph f .



b) Write a mapping rule for function g whose graph is obtained by translating the graph of function f for 3 units in the positive direction along the y axis.

5. Observe the graphs of the functions f and g shown in the figure.



If $x < 2$, put the appropriate symbol $<$, $>$ or $=$ in the appropriate place:

$f(x)$ $f(2)$

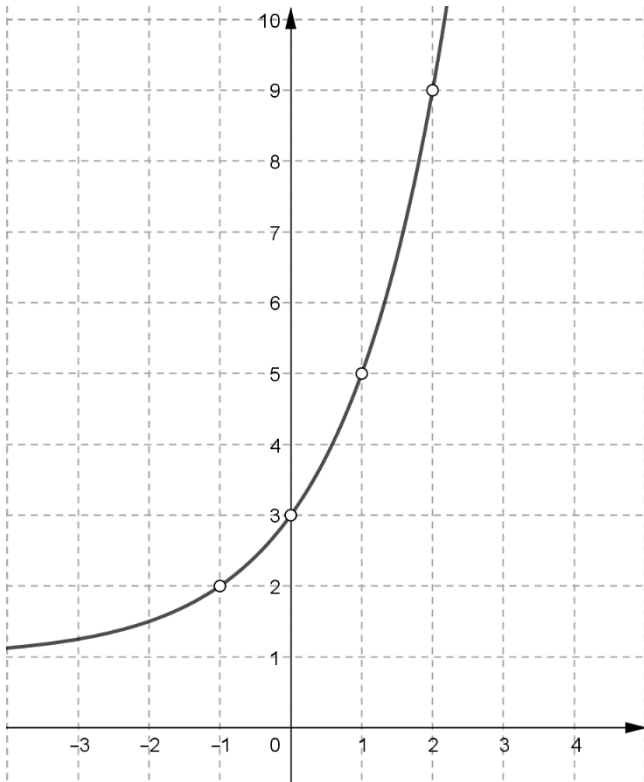
$g(x)$ $g(2)$

$f(x)$ $g(x)$

Specify the reason for the selection of each symbol.

6. Write a mapping rule for **some** falling exponential function to which asymptote is line $y = -1$.

7. The graph shows the function $f(x) = b^{x+1} + c$. Determine the real numbers b and c .



8. For the exponential function f the following applies: $f(2) = 64$, $f(4) = 4$, the asymptote of the graph of function f is the x axis.

a) What is $f(0)$?

b) What are the values of the variable x that is $f(x) \leq \frac{1}{16}$?

9. Isotope of radium ${}_{88}^{226}$ decays according to exponential law such that the initial amount of 10 g after 1622 years is halved. Determine how the amount of K isotope (in grams) depends on the time t (in years).