



Nomograms

In these lessons you will learn about a new way to look at functions. We already know about: formula, table and graph. Let's take it one step further and investigate the *nomogram*.

Assignment 1: explore the nomogram

Take a tablet or smartphone, Scan the QR code and answer the questions below: Or on a computer use this url:

<https://www.geogebra.org/m/kjs873gk>



1. While moving the point look at the arrow. When does the arrow become green?
2. Try different exercises using the forward and backward buttons. What can you remark about the movement of the point and the way the black arrows are pointing?

Fill out the table.

Exercise	Description of the movement in relation to the black arrows:	Description of the black arrows:
	<i>Upward, downward, horizontal</i>	<i>Pointing towards a single point, parallel, pointing up, pointing down, pointing towards each other, pointing away from each other</i>
1		
2		
3		
4		
5		
6		
7		

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Assignment 2: Nomograms, graphs and formulas

Take a tablet or smartphone, Scan the QR code and answer the questions below: Or on a computer use this url: <https://www.geogebra.org/m/vggwcwe4>



1. Move the point around, what can you say about the relation between the position of the point and the position of the arrow?
2. Push the trace button and move the point horizontally, what can you remark about the trace of the arrow. Explain your findings.
3. Attach the point to the graph of $f(x) = 0,5x$ and examine the trace, then try $f(x) = 2x$, what is the difference? Explain your findings.
4. Suppose all the arrows are horizontal, what linear formula would fit? Check your solution using the applet.
5. Examine the trace of $f(x) = x + 1$ and $f(x) = x - 1$. What can you remark about the differences?
6. The two vertical number lines, together with the trace of arrows is called a nomogram. Explain what a nomogram represents for a given function. What is the role of the first number line? And what is the role of the second?

Assignment 3: find the formula

Take a tablet or smartphone, Scan the QR code and answer the question below: Or on a computer use this url: <https://www.geogebra.org/m/kjs873gk>



1. For each of the seven nomograms write down a linear formula, assume that the space between the grid lines is equal to one.

Exercise	formula
1	
2	
3	
4	
5	
6	
7	