The Bright Side of Mathematics

The following pages cover the whole How to Learn Mathematics course of the Bright Side of Mathematics. Please note that the creator lives from generous supporters and would be very happy about a donation. See more here: https://tbsom.de/support
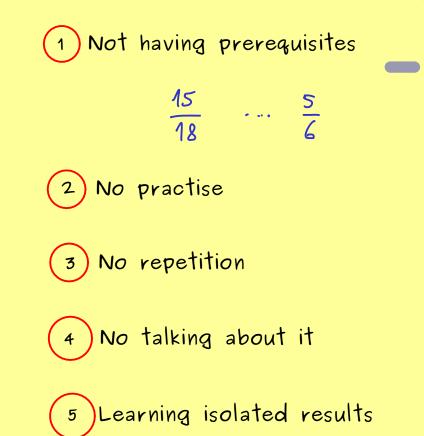
Have fun learning mathematics!

How <u>not</u> to learn mathematics

(1) Not having prerequisites

$$\frac{15}{18} \quad \cdots \quad \frac{5}{6}$$

(2) No practise

(3) No repetition

(4) No talking about it

(5) Learning isolated results

How to learn mathematics

Task 3

System of equations

$$\left(\begin{array}{c} \\ \\ 0\ 0\ 0\ 0\ 0 \end{array} \middle| (\text{*}) \right)$$

Given is a system of equations in x and y with a, c $\in \mathbb{R}$

I: $2 \cdot x - y = 3$
II: $a \cdot x + 2 \cdot y = c$

$\iff \left(\begin{array}{cc|c} \boxed{2} & -1 & 3 \\ a & 2 & c \end{array} \right) \quad \underset{\sim}{II - \frac{a}{2}I} \quad \left(\begin{array}{cc|c} \boxed{2} & -1 & 3 \\ 0 & 2+\frac{a}{2} & c-3\frac{a}{2} \end{array} \right)$

This system of equations has no solution.

Task:

$\text{No solution} \iff 2 + \frac{a}{2} = 0$

Enter a value for a and c.

$c - \frac{3}{2}a \neq 0$

a = $\underline{\quad -4 \quad}$

c = $\underline{\quad 0 \quad}$

Task 25 (Part 2)

Archery

On the grounds of a specific 3D archery range, people shoot at figures with bows and arrows.

Task:

a) Paul shoots an arrow at a figure. The trajectory of the arrowhead from the start at point S to
the target at point Z can be modeled by the straight line g.

The following applies: S = (0|0|1.8), Z = (−5|7|8.5)

1) Write an equation of g in parametric form.

g: X = _____ [0/1 P.]

b) Lara sees a certain figure under the visual angle. In a . In the following not to scale
the faithful image, the relationship between the visual angle and the a the distance r and
size h is shown.