U NASTAVI SREDNJE ŠKOLE

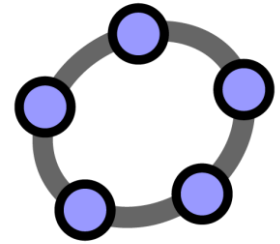
Marina Njerš, prof. savjetnica
Gimnazija „Fran Galović” Koprivnica

O GeoGebri

– Hrvatski institut za GeoGebru

Hohenwarter (2001.g.)

O predavanju

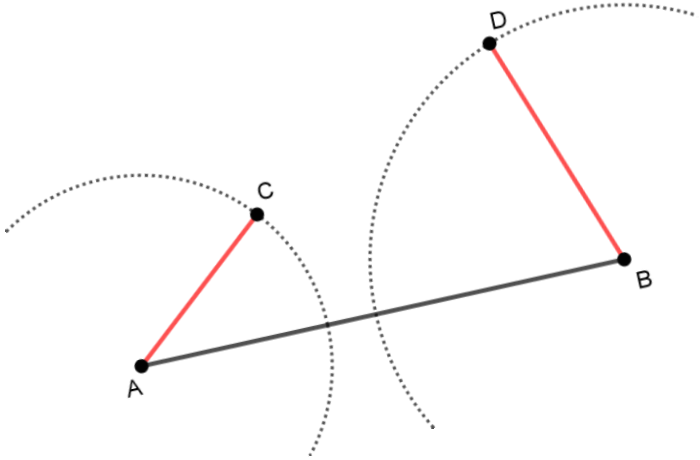


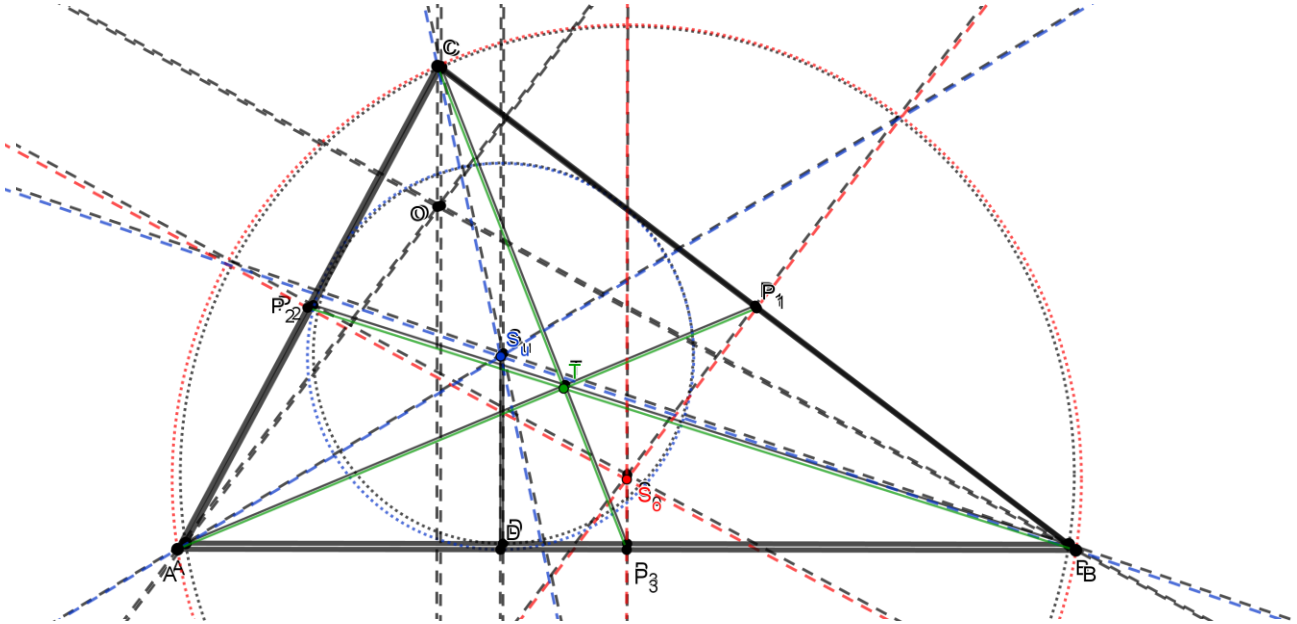
Gdje, kada i kako koristiti GeoGebru?

Treba li znati programirati?

Krenimo s primjerima...

1. razred





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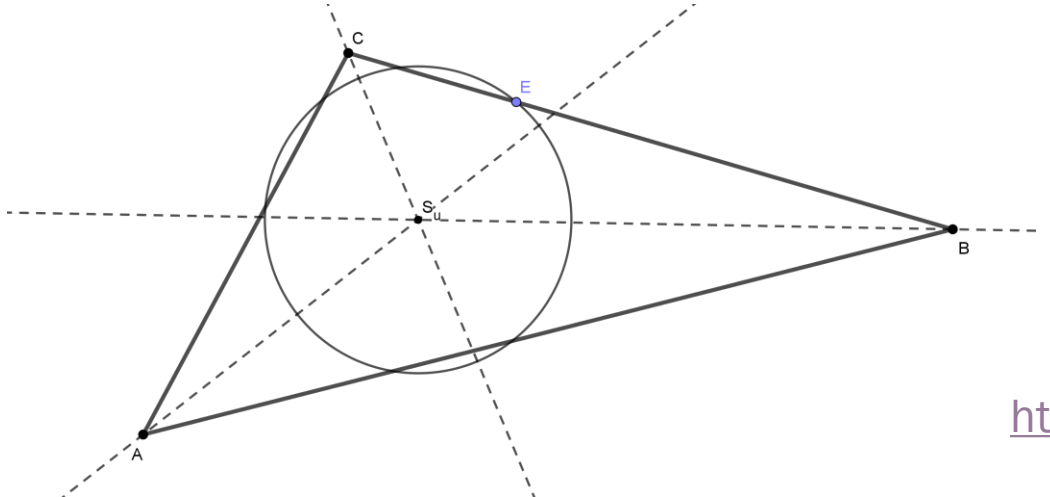
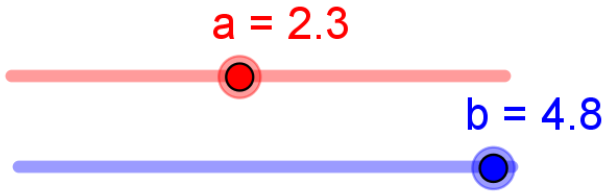


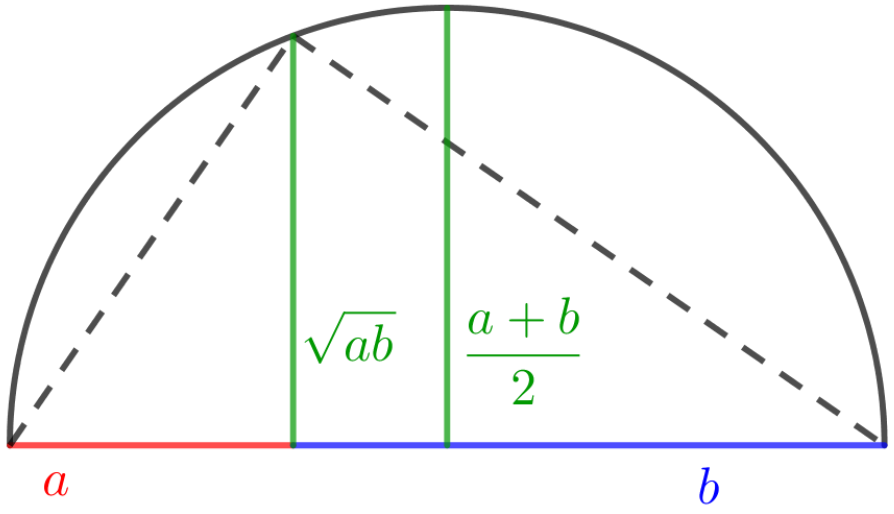
https://ggbm.at/Nmrnhgh4

1. razred



AG nejednakost

https://www.geogebra.org/m/zcabjrgz



$$\sqrt{ab} \leq \frac{a+b}{2}$$

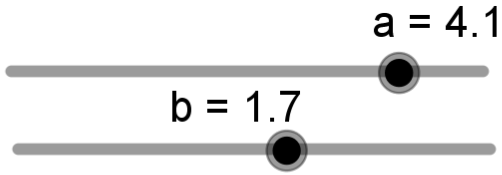
☑ Aritmetička sredina brojeva a i b

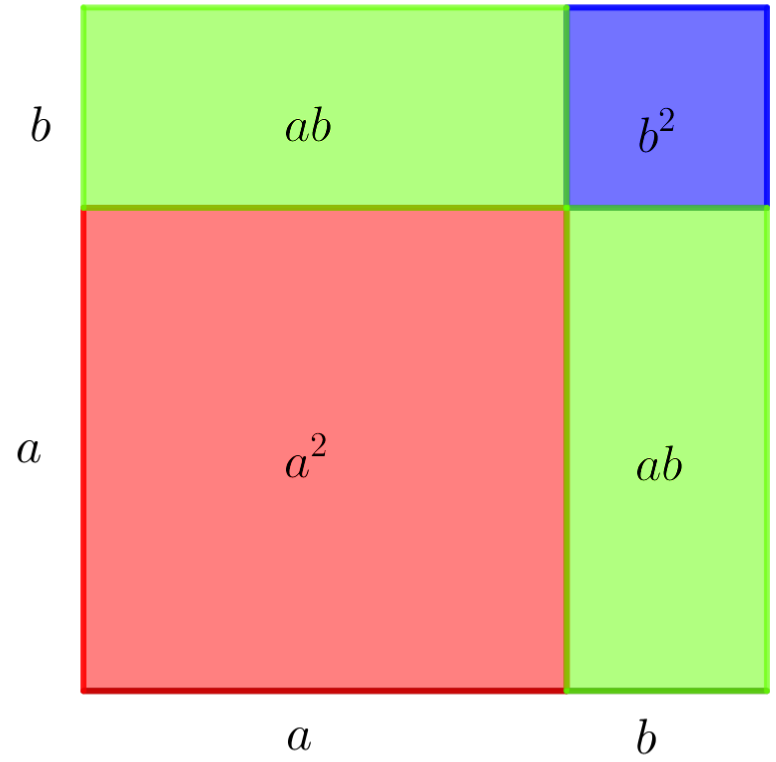
$$\sqrt{2.3 \cdot 4.8} \leq \frac{2.3+4.8}{2}$$

☑ Geometrijska sredina brojeva a i b

$$3.32 \leq 3.55$$

1. razred



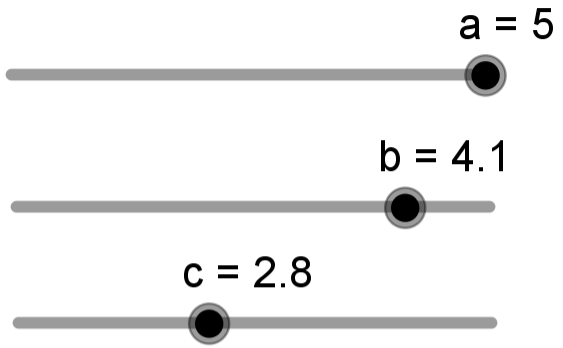


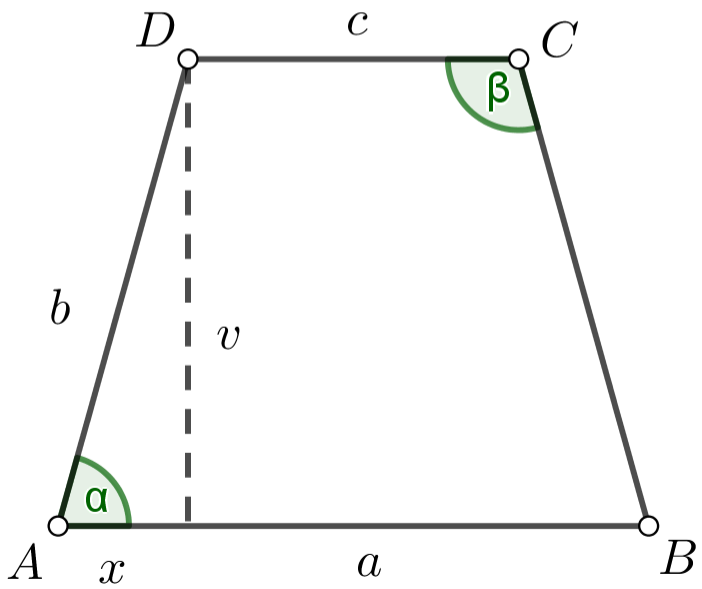
https://www.geogebra.org/m/bapdxgfr

$$(a+b)^2 = a^2 + 2ab + b^2$$

2. razred

Osnovice jednakokračnog trapeza jednake su 5 cm i 2.8 cm, a duljina kraka je 4.1 cm.
Koliki su kutovi trapeza?





$$x = \frac{a-c}{2} = \frac{5-2.8}{2} = 1.1$$

$$cos\alpha = \frac{x}{b} = \frac{1.1}{4.1} = 0.27$$

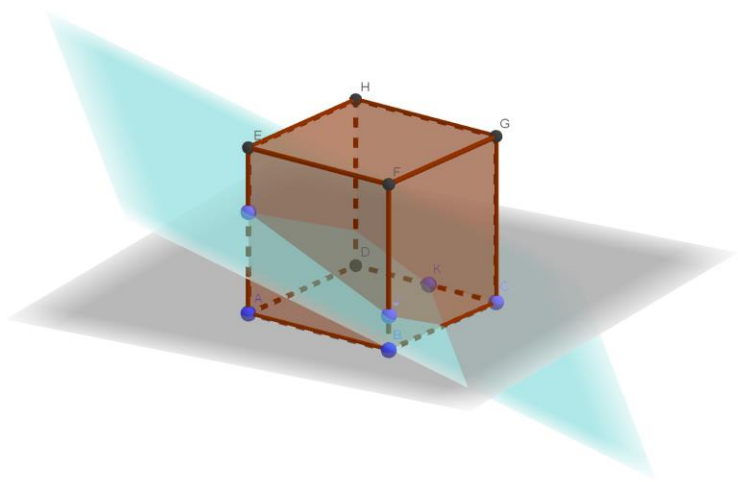
https://www.geogebra.org/m/arvj5fpb

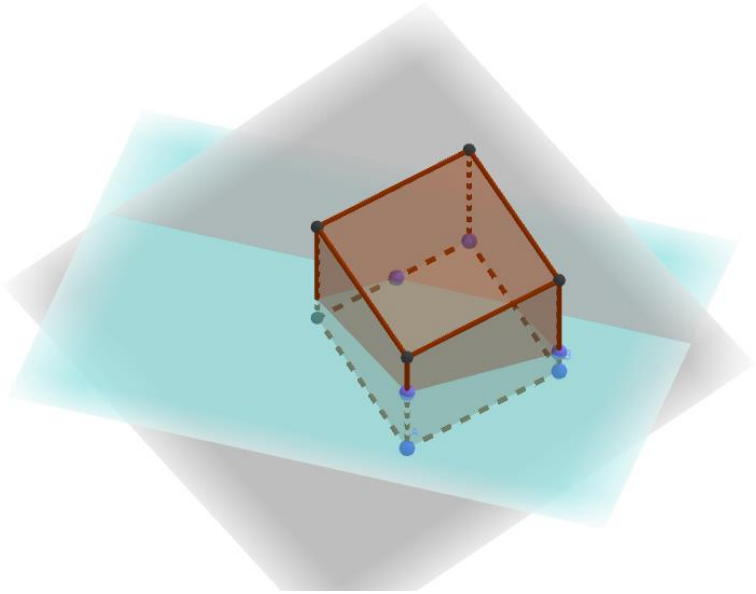
$$\alpha = 74.44°$$

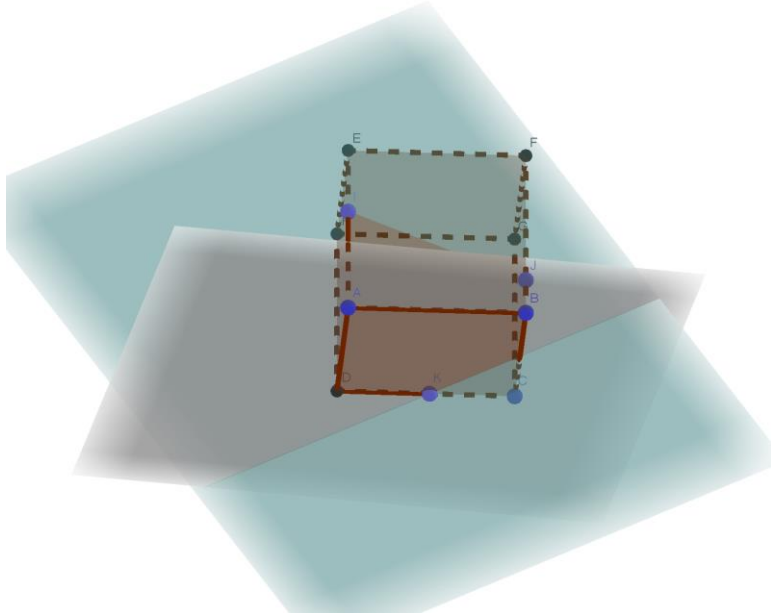
$$\beta = 180° - \alpha = 180° - 74.44° = 105.56°$$

2. razred

Presjek kocke ravninom



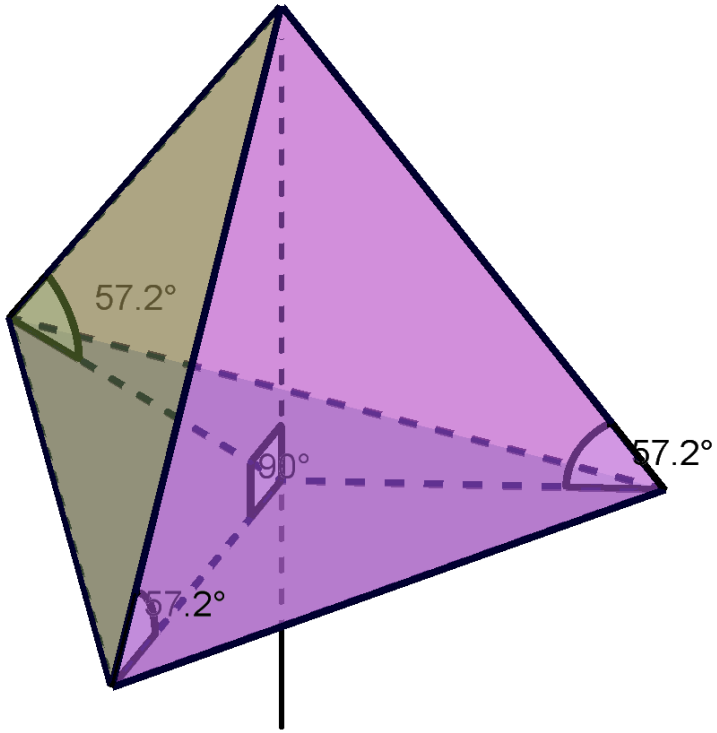


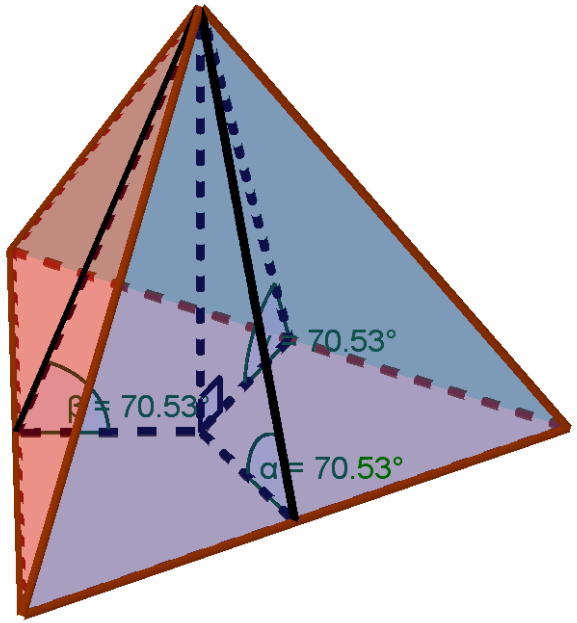


https://ggbm.at/GknRXDYX

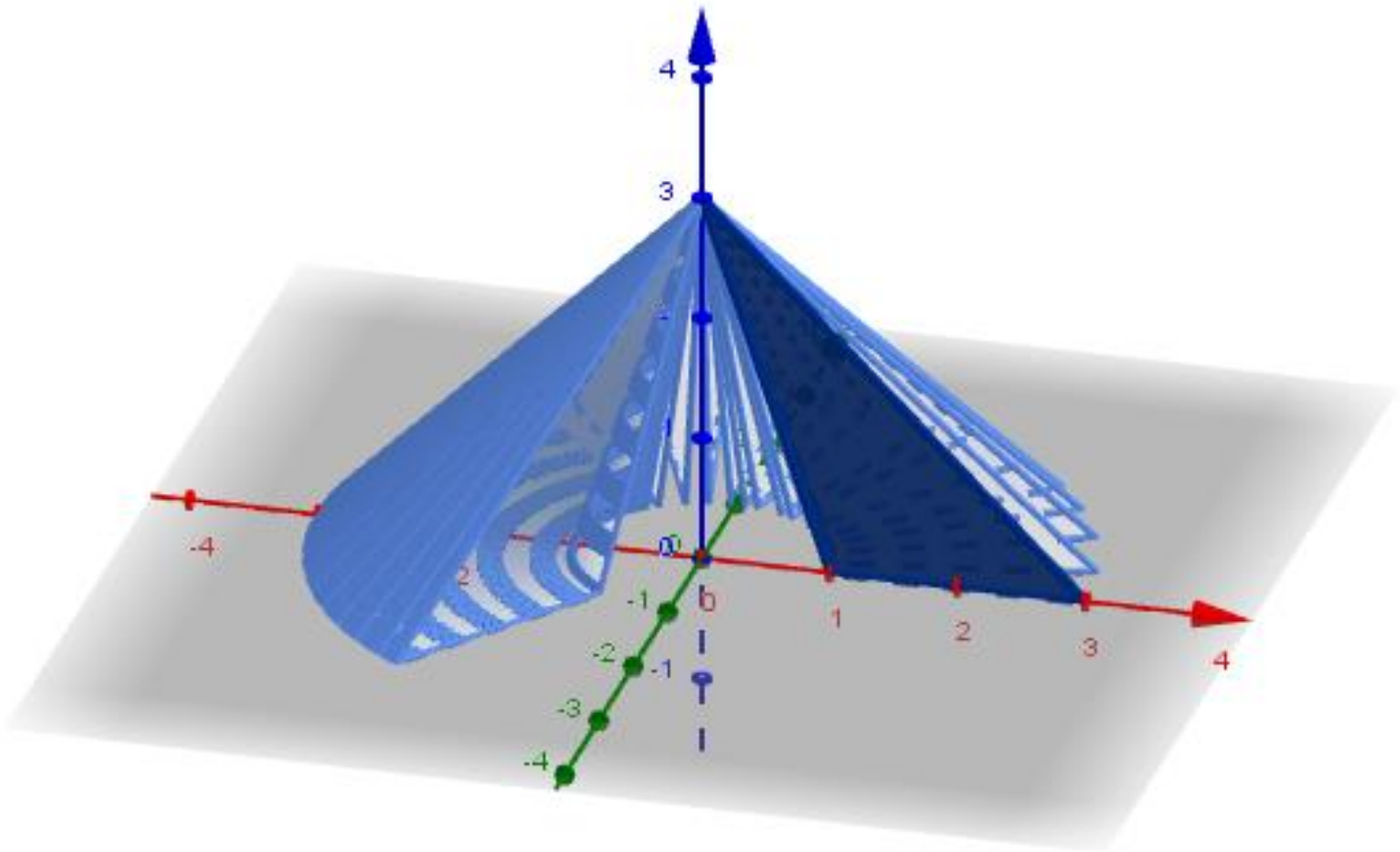
2. razred

Kut između bočnog brida i osnovke; Kut između bočne strane i osnovke

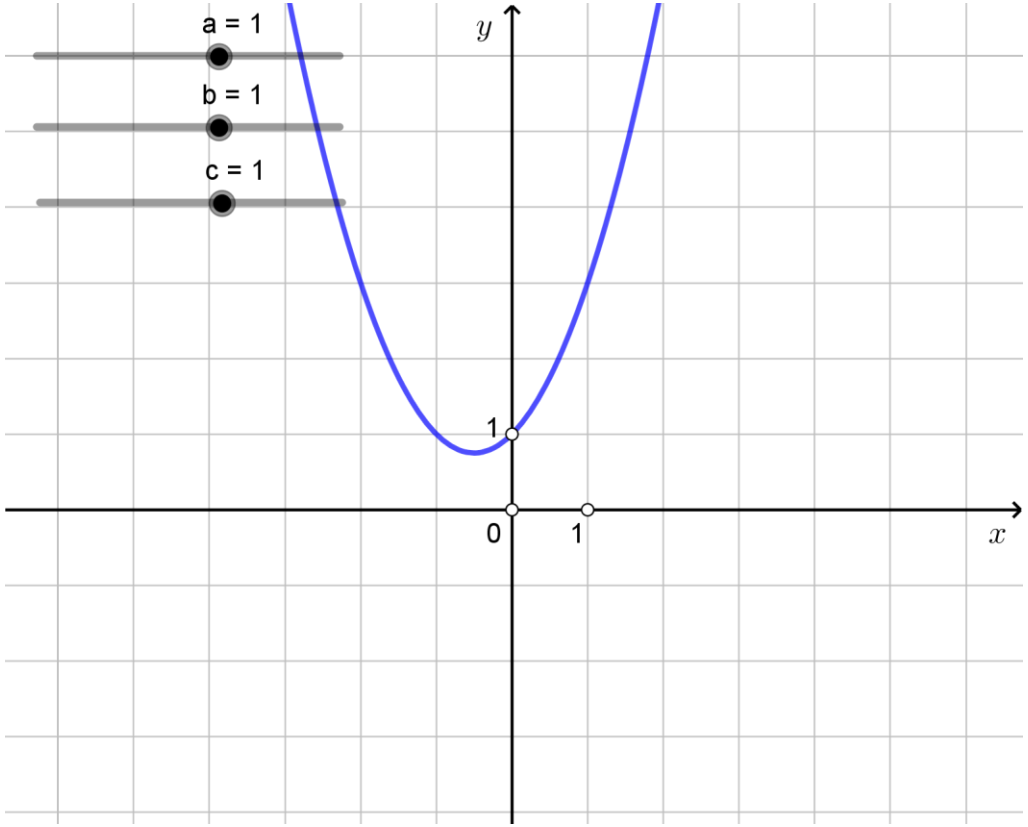


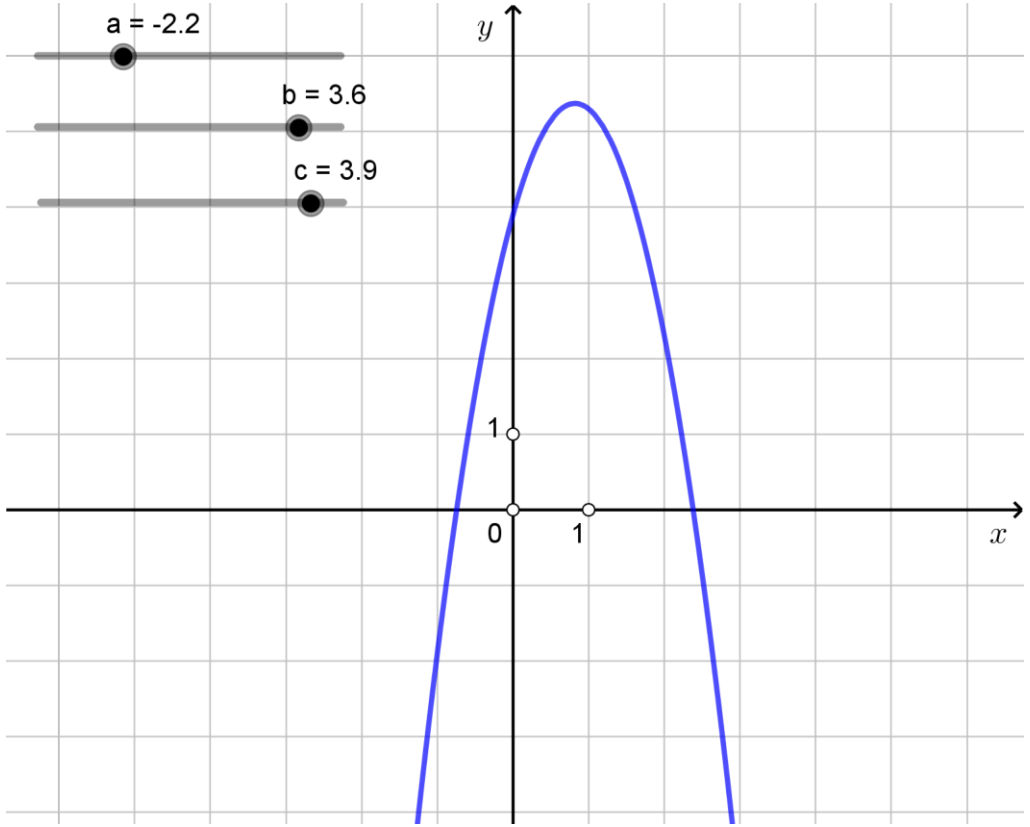


Rotacijska tijela https://www.geogebra.org/m/cvzmDxz8



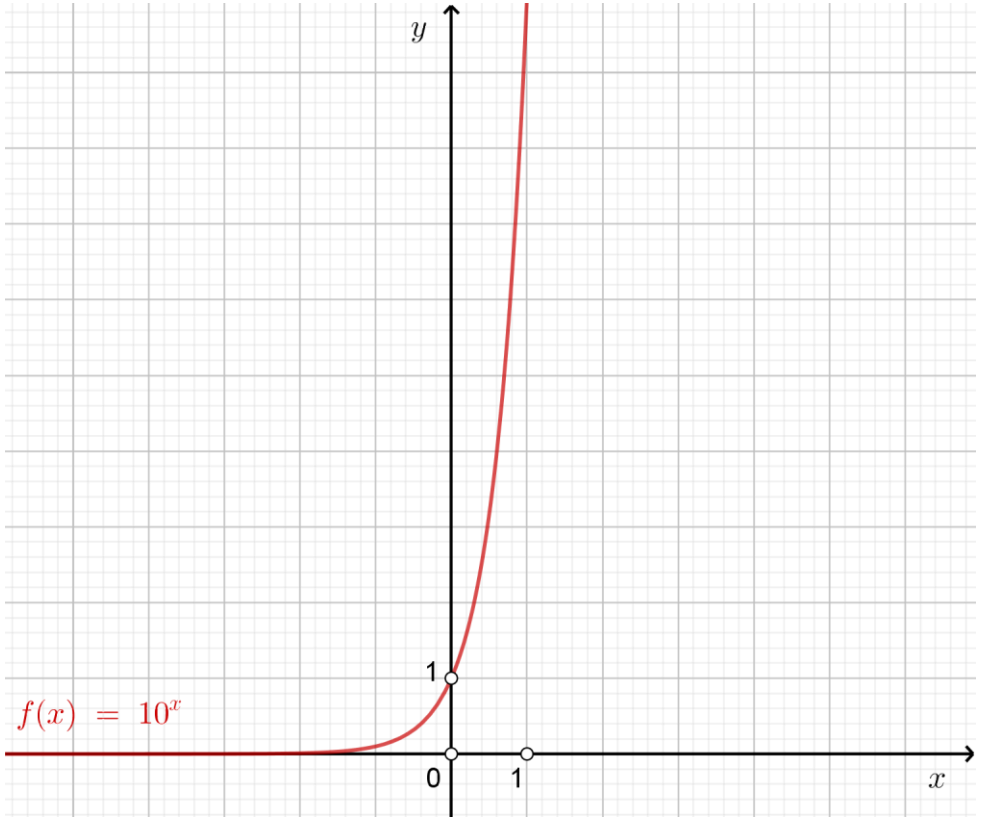
Kvadratna funkcija

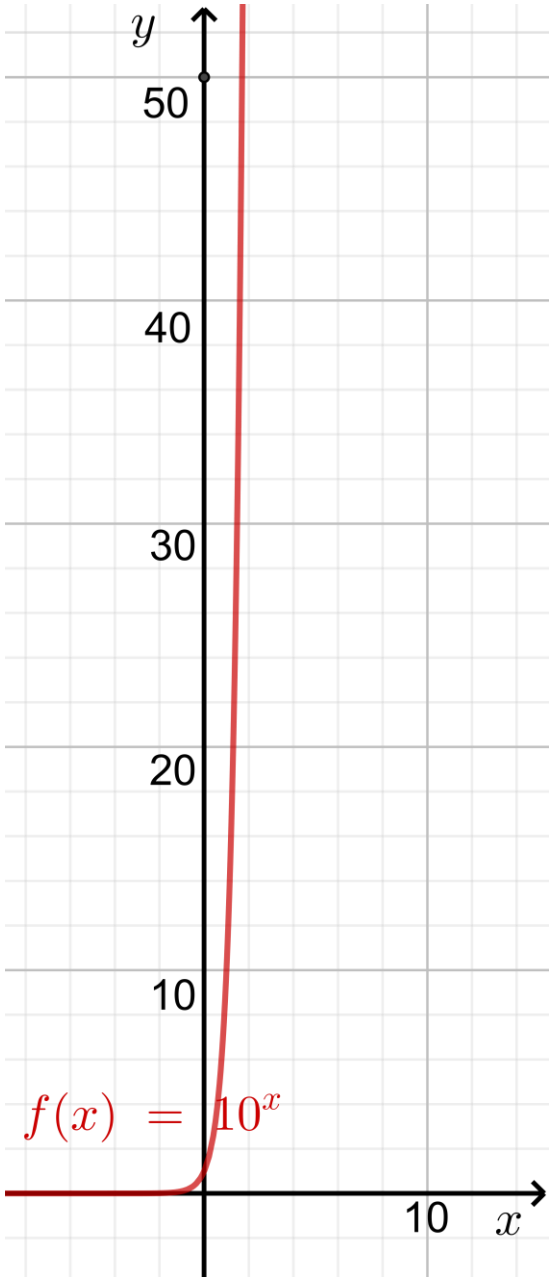




https://www.geogebra.org/m/kdBzVjdH

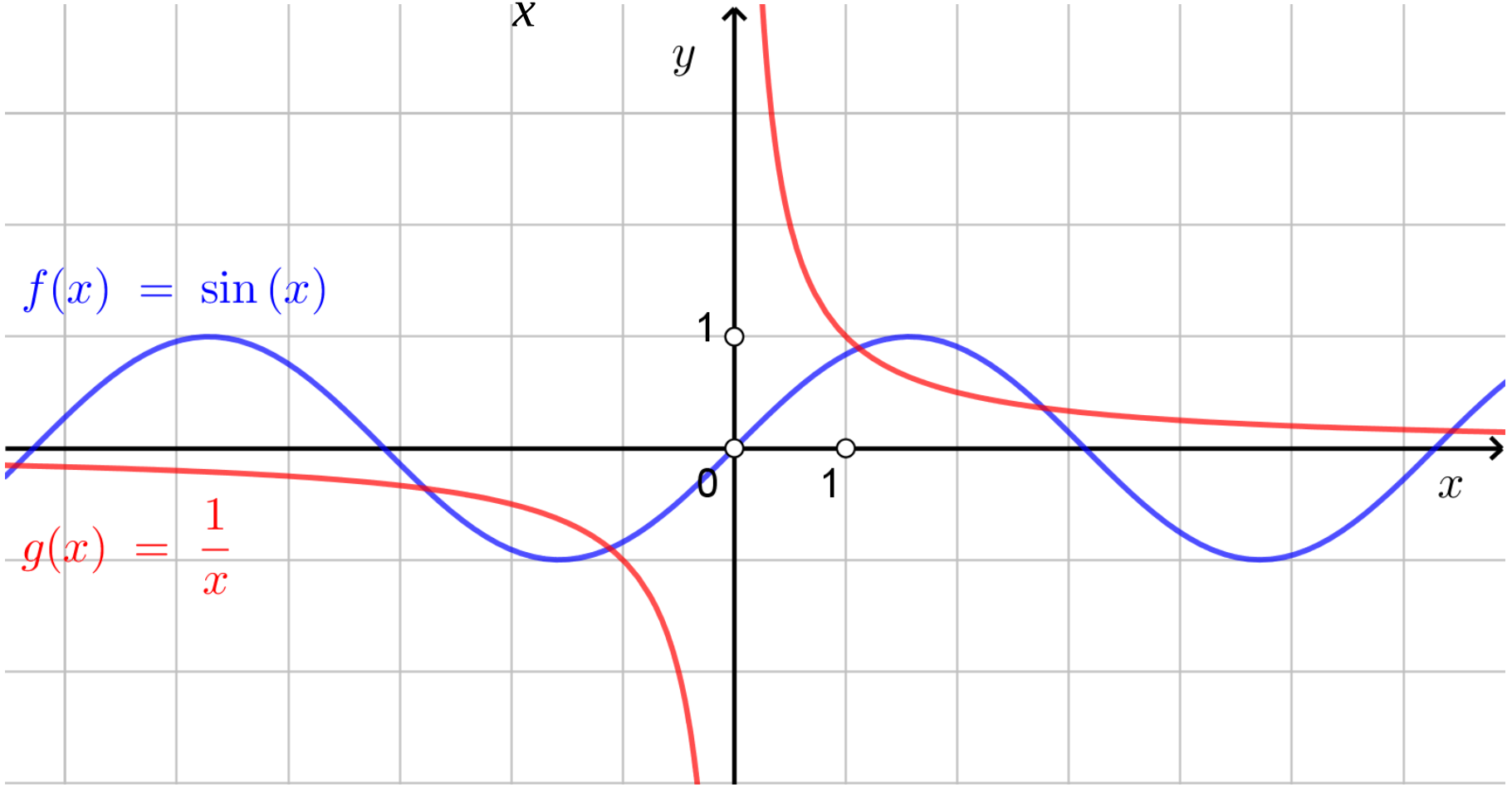
Eksponencijalna funkcija



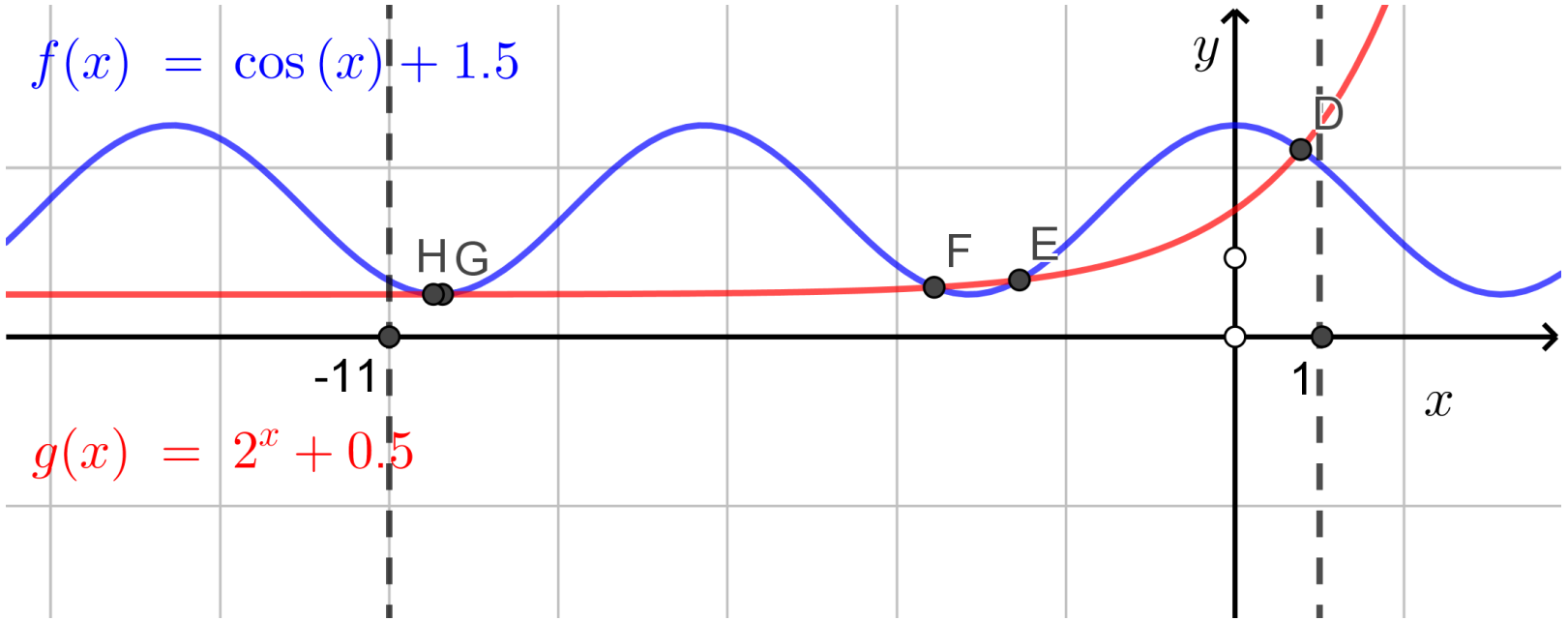


3. razred

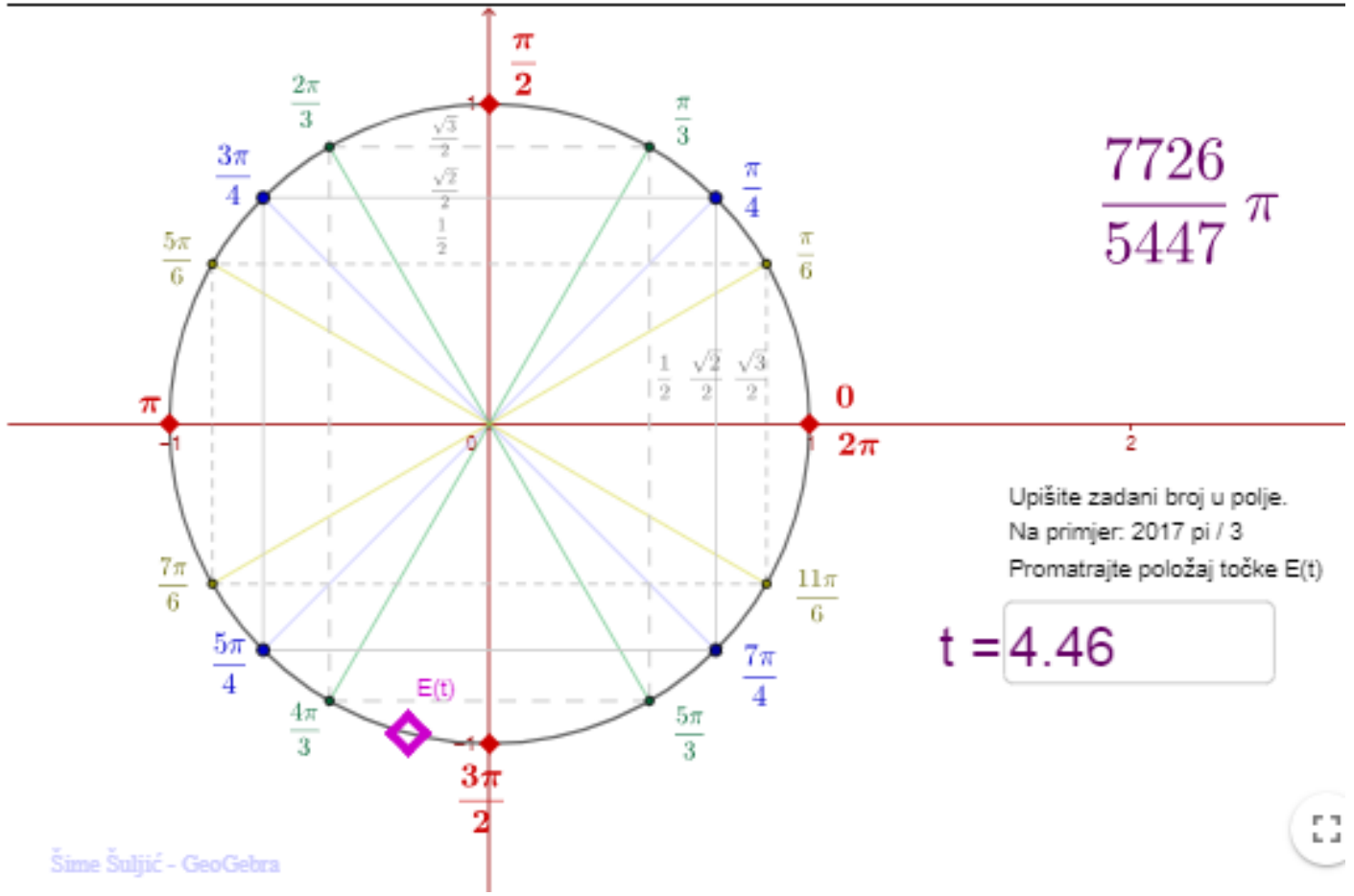
Koliko rješenja ima jednadžba $\sin x = \frac{1}{x}$?



Koliko rješenja ima jednadžba $\cos x + 1.5 = 0.5 + 2^x$ na intervalu $\langle -11, 1 \rangle$?



Brojevna kružnica - određivanje glavne mjere kuta



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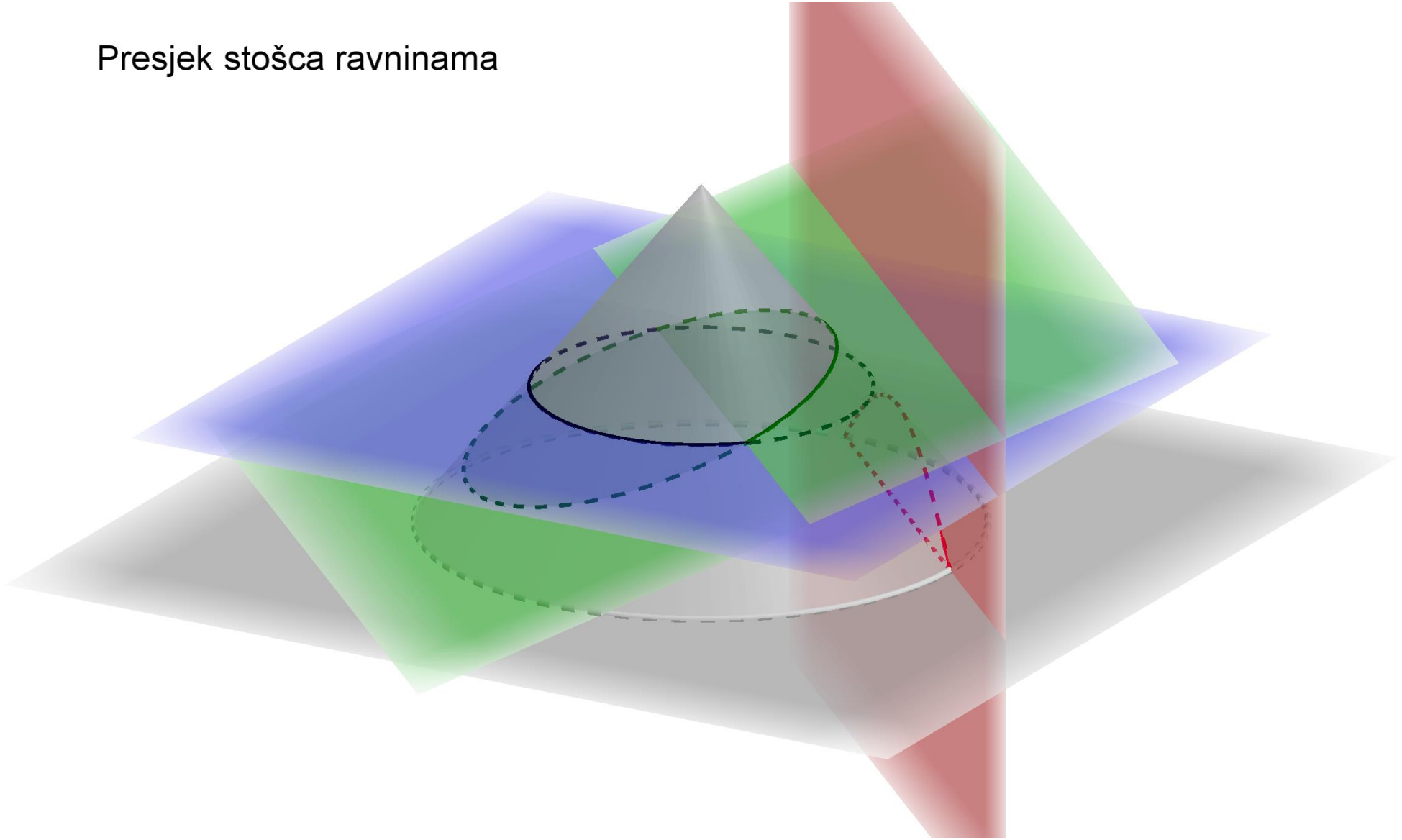
Presjek stošca ravninama



https://www.geogebra.org/m/ehbr7tzv

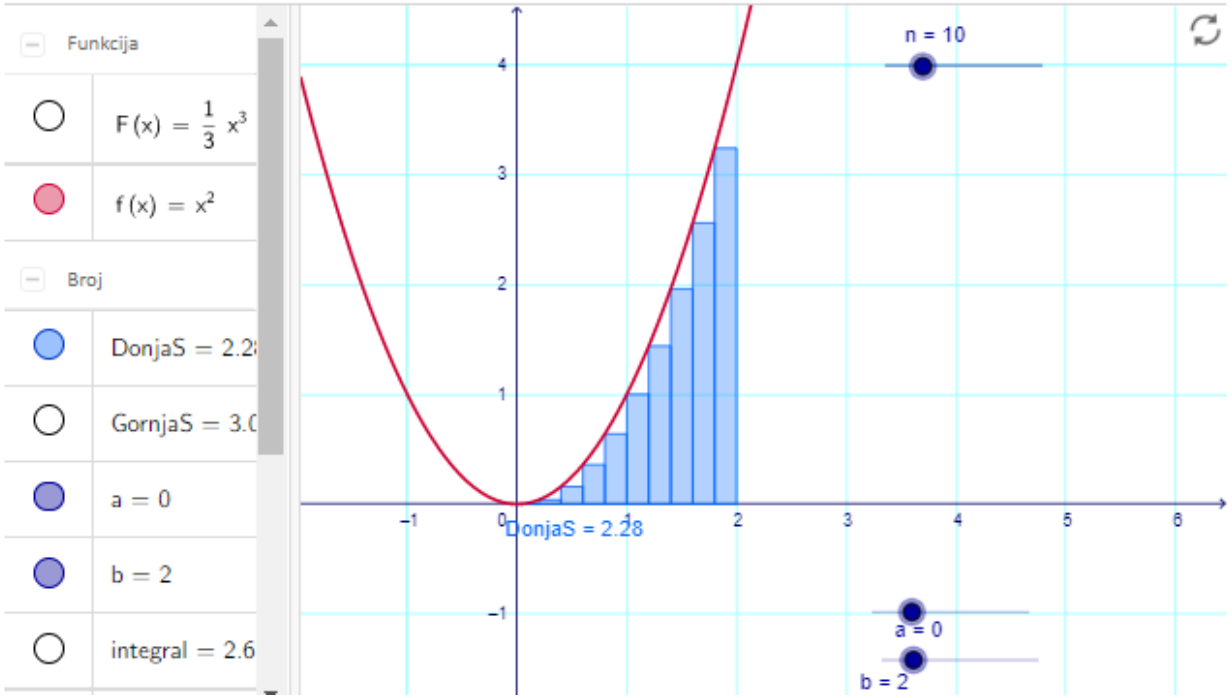
4. razred https://www.geogebra.org/m/tegvJrq6

GeoGebra

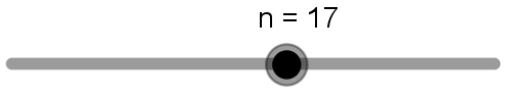
Površina ispod luka parabole - integralne sume

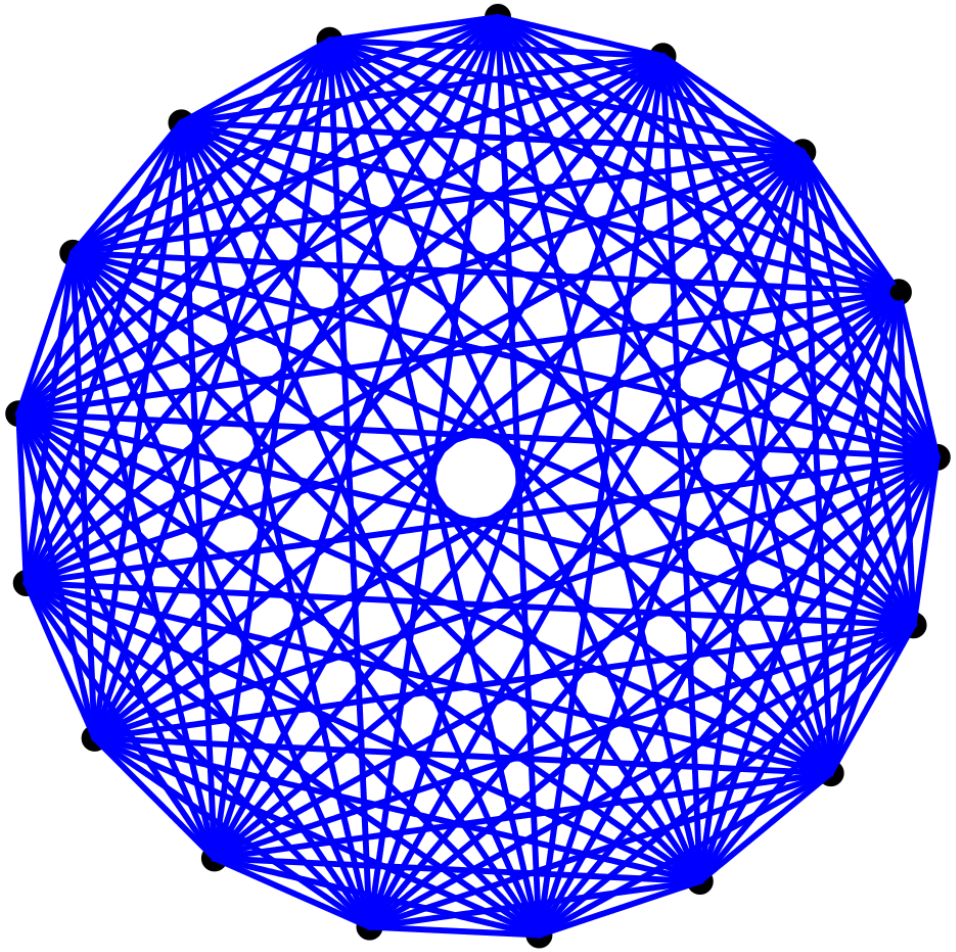
Autor: Šime Šuljić

Površina ispod luka parabole pomoću pravokutnika upisanih ispod luka i opisanih iznad luka.
Broj pravokutnika povećava se klizačem *n*, a granice intervala određuju se klizačima *a* i *b*. Prikaz ostalih elemenata uključuje se u lijevom prozoru.



Uvodni dio sata





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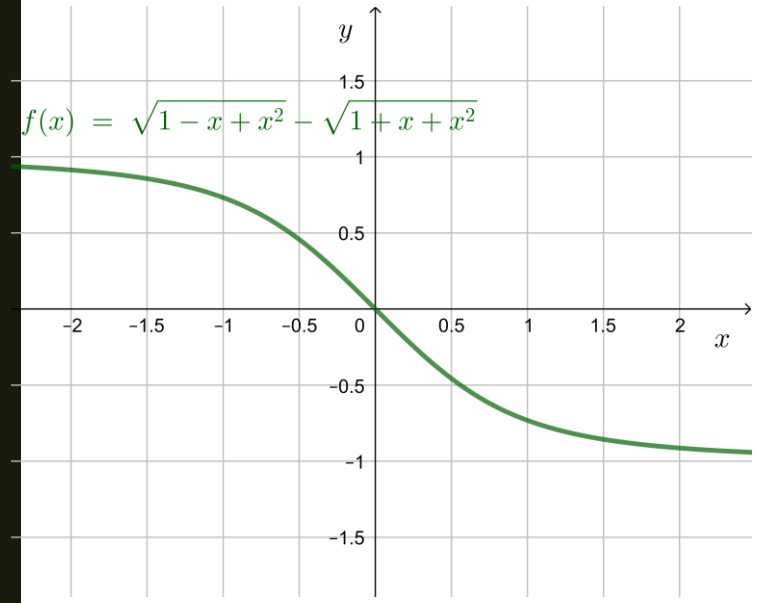
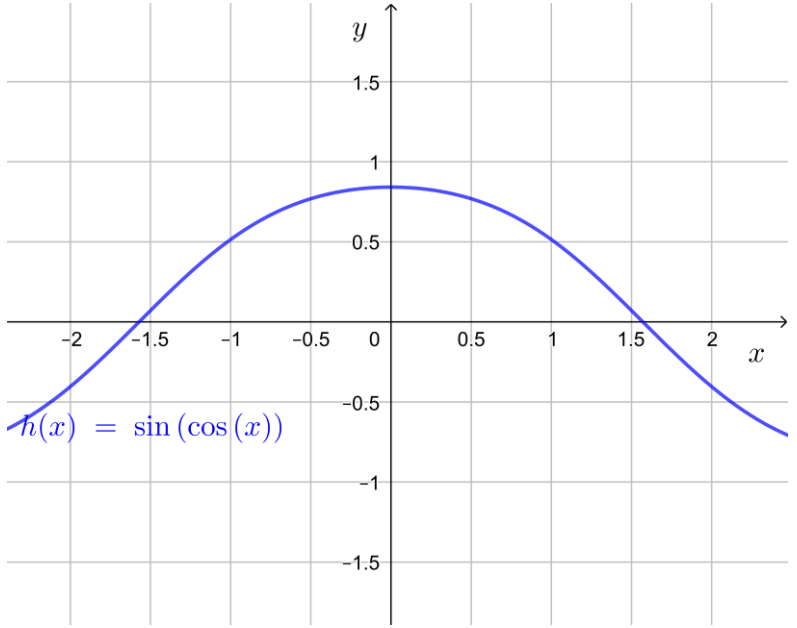
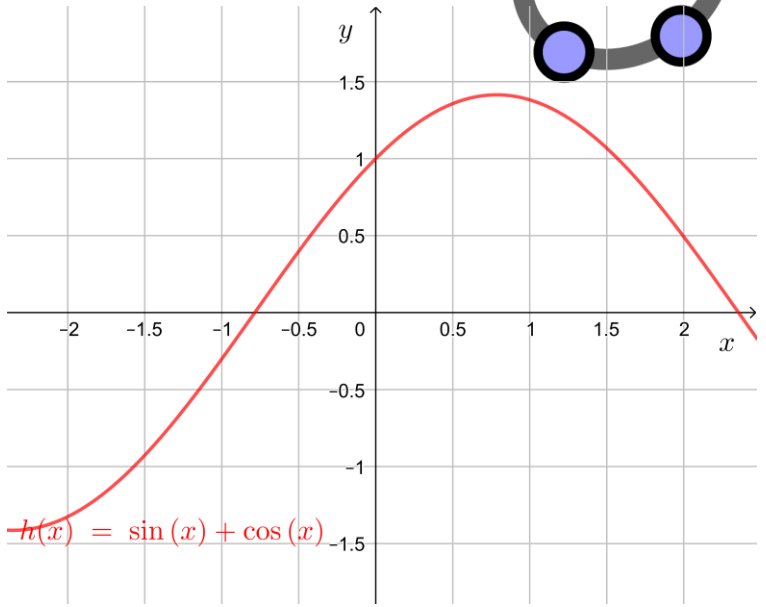
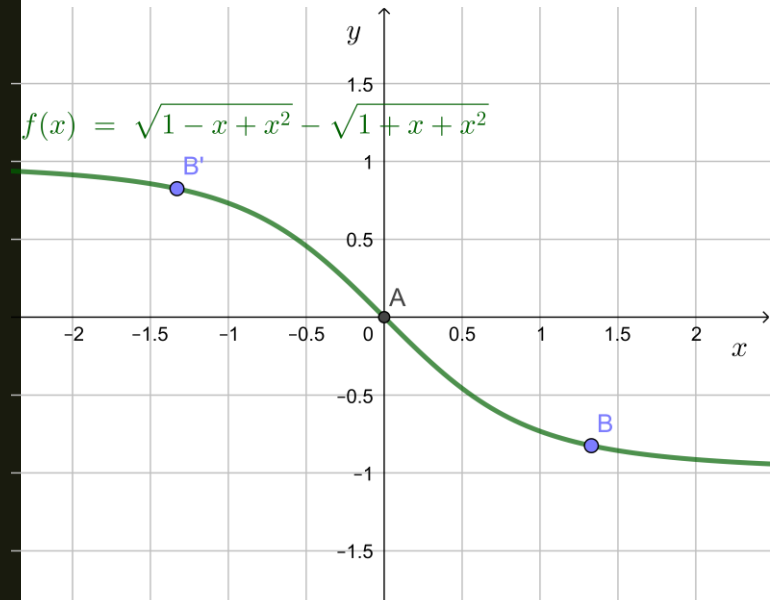
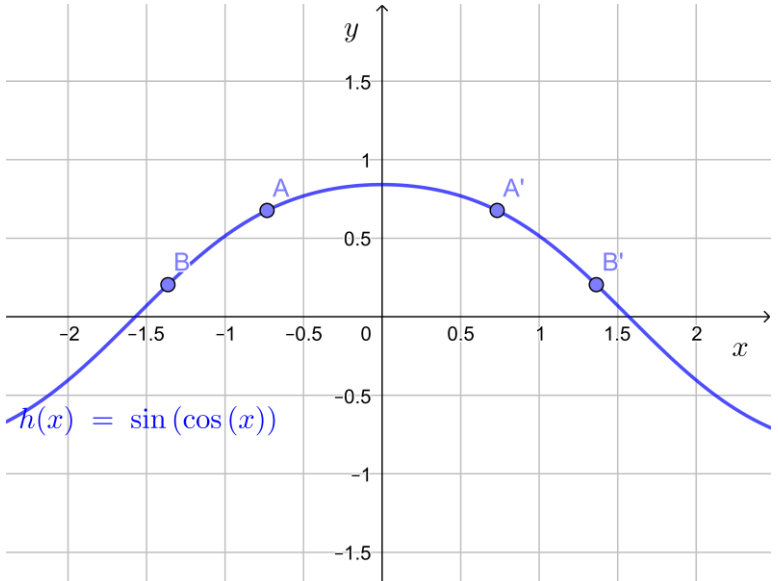
Središnji dio sata

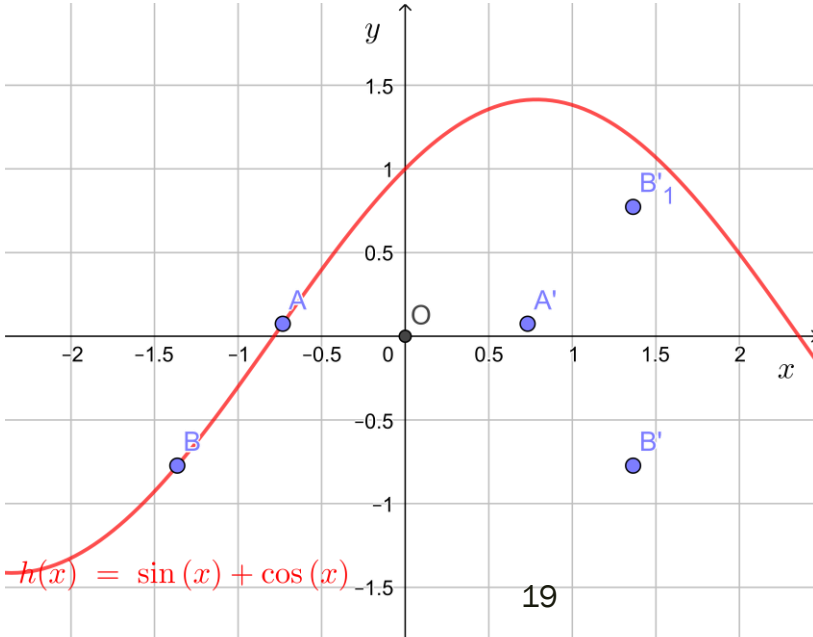




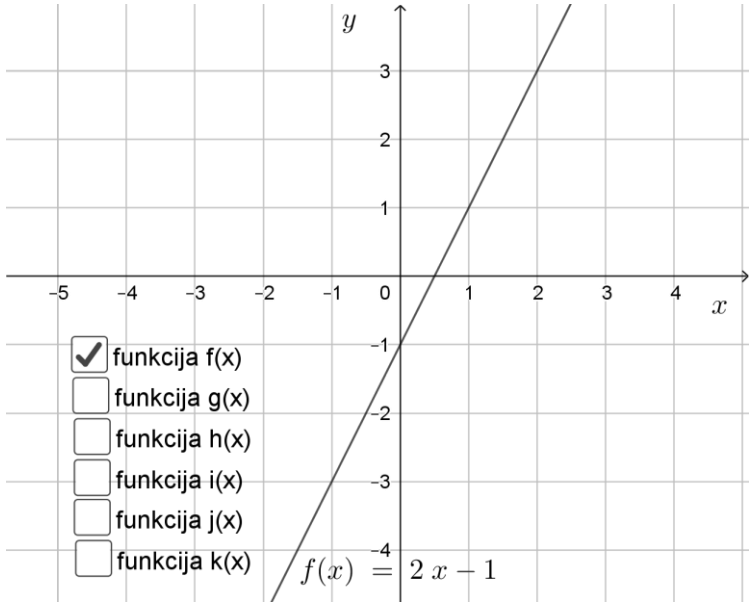


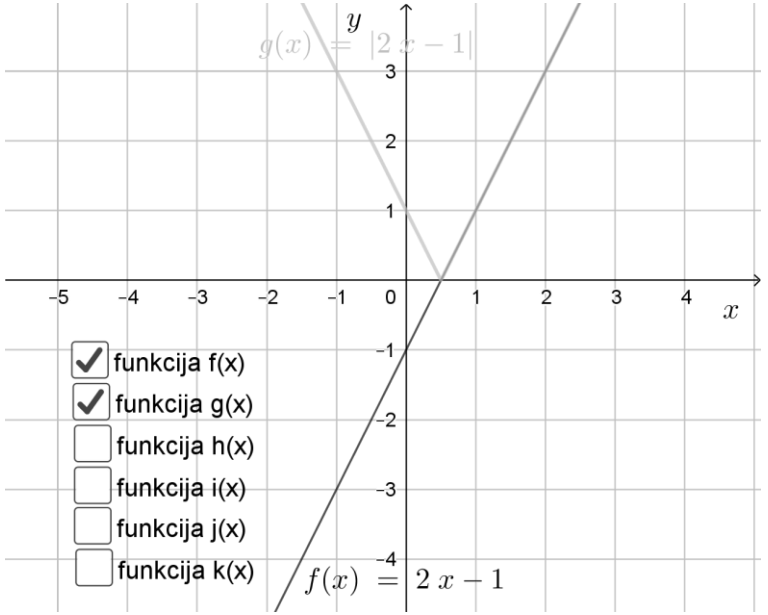


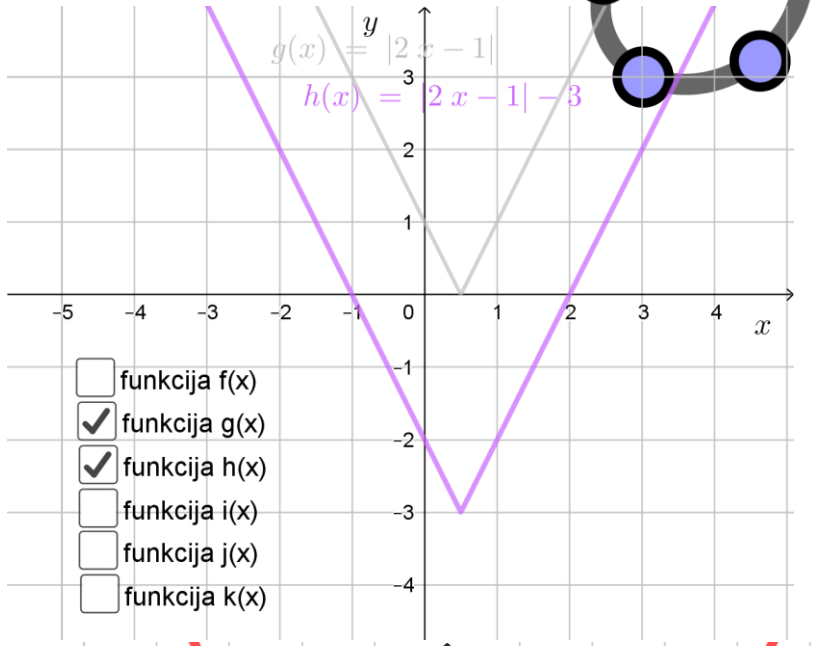


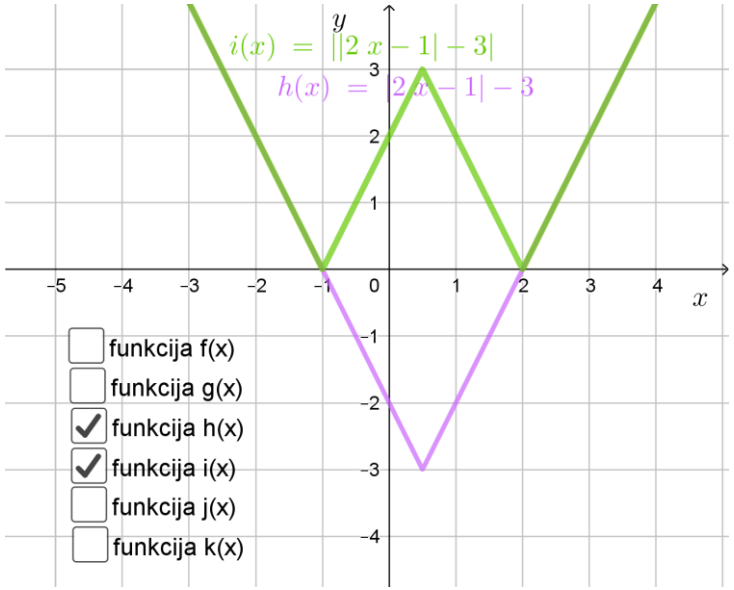


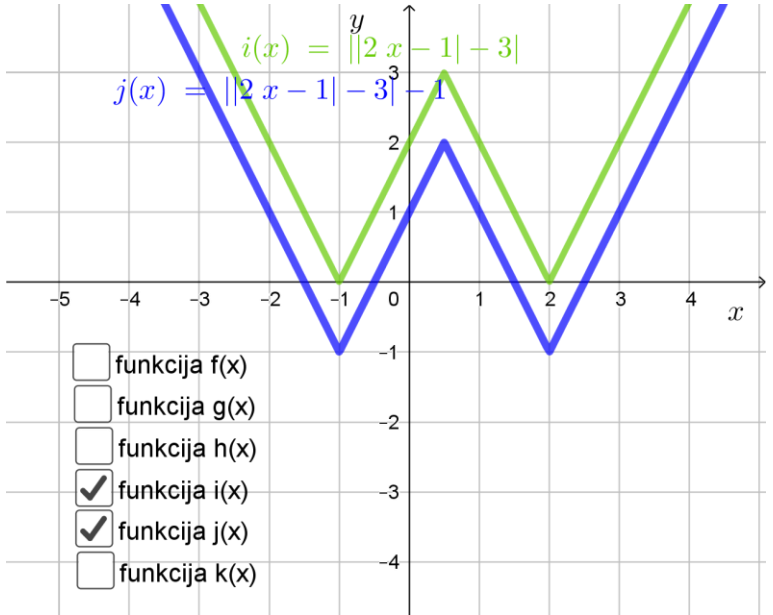
Završni dio sata https://www.geogebra.org/m/bBtuNahw



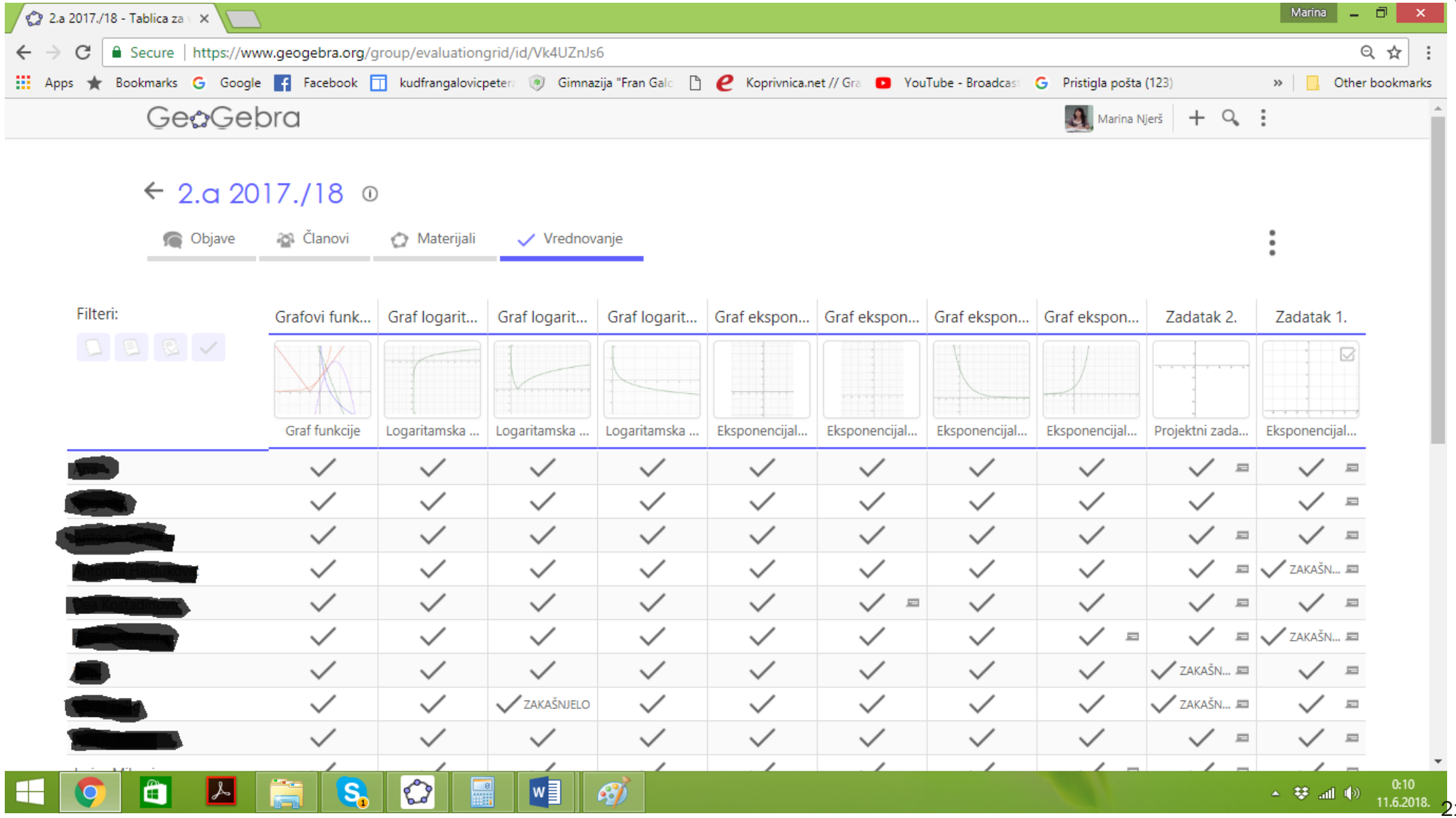








Domaća zadaća



Pomoć kod učenja...

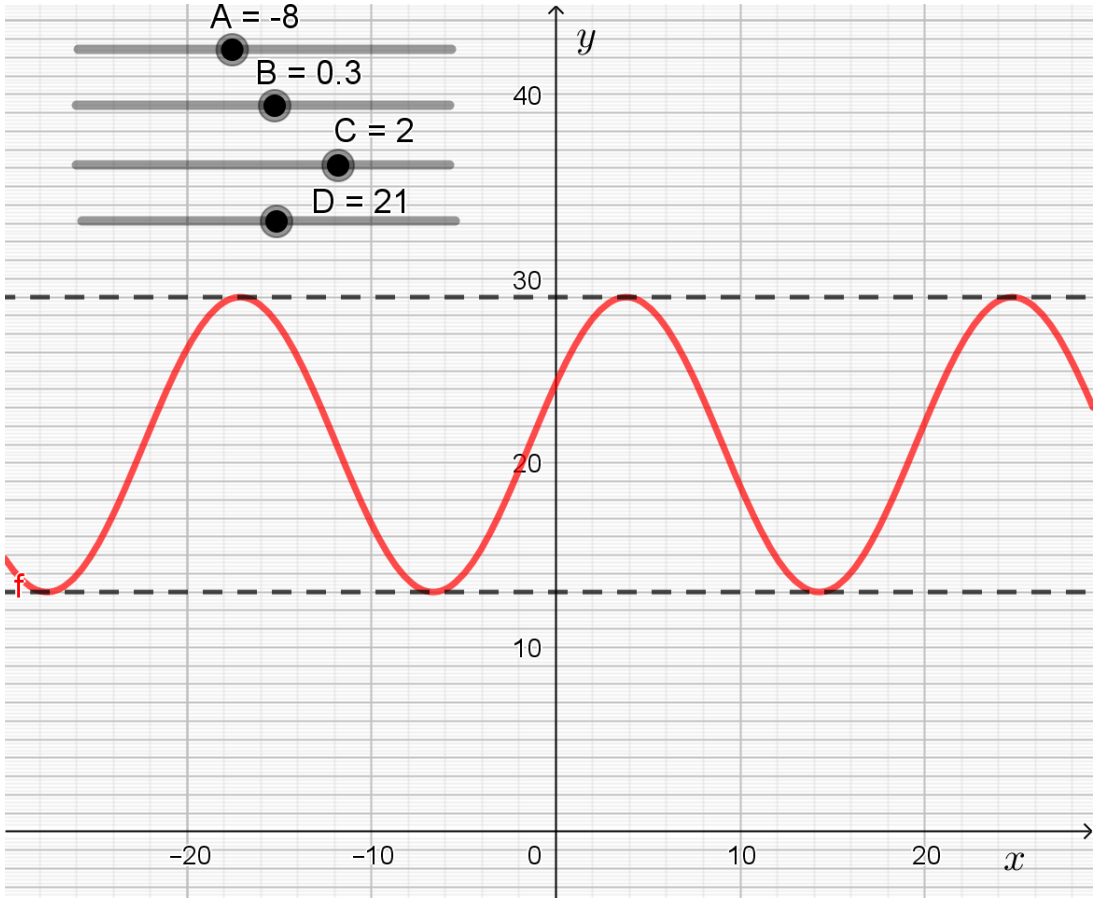
15. Temperatura $T(t)$ izražena u °C mijenja se prema formuli $T(t)=A\cos(Bt+C)+D$ gdje je t vrijeme u satima. Kolike su vrijednosti parametara A i D ako je maksimalna temperatura 29 °C, minimalna 13 °C i $A<0$?

A. $A=-16,\ D=21$

B. $A=-16,\ D=45$

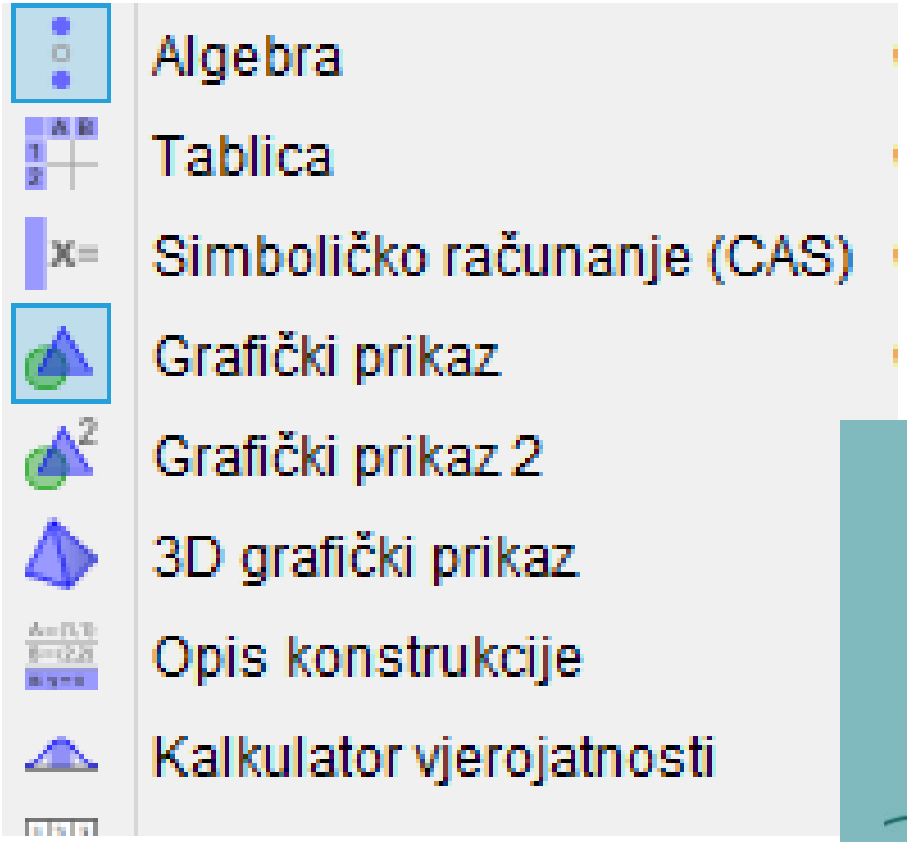
C. $A=-8,\ D=21$

D. $A=-8,\ D=45$



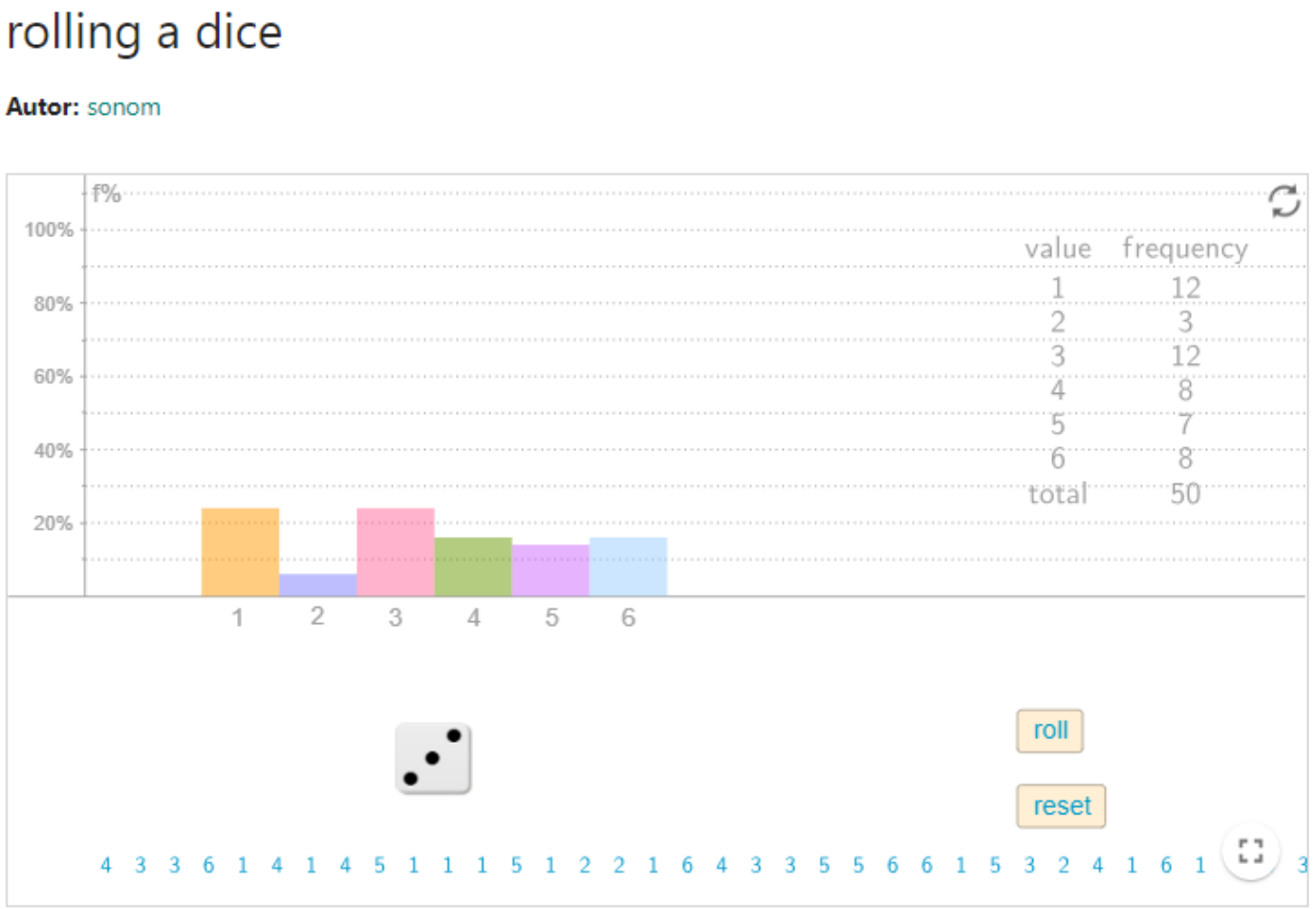
https://www.geogebra.org/m/raCUEsaN

GeoGebra nije samo geometrija

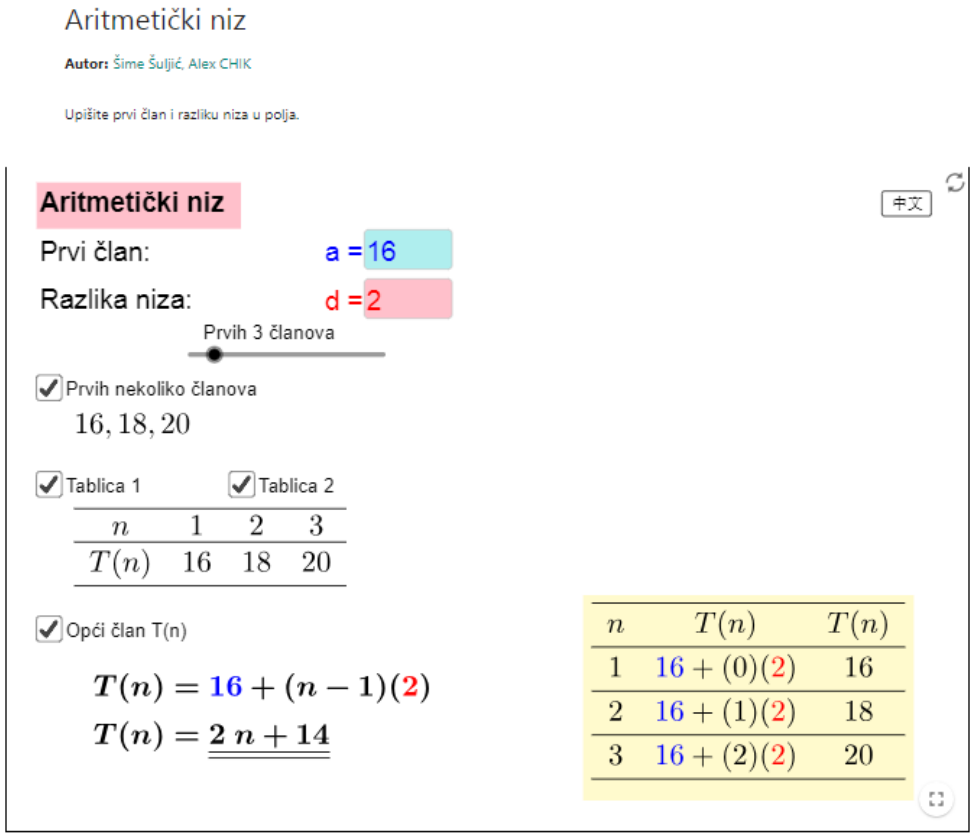


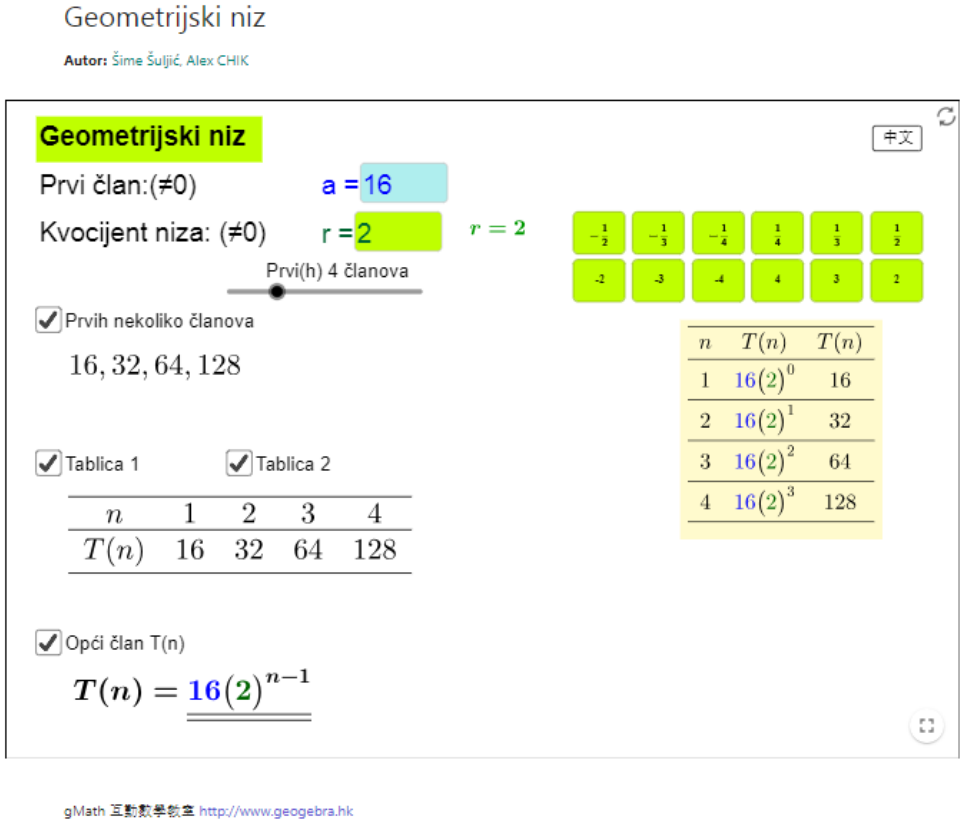
Materijali www.geogebra.org

Simulacija bacanja kocke https://www.geogebra.org/m/hZPtarsG



Aritmetički i geometrijski niz





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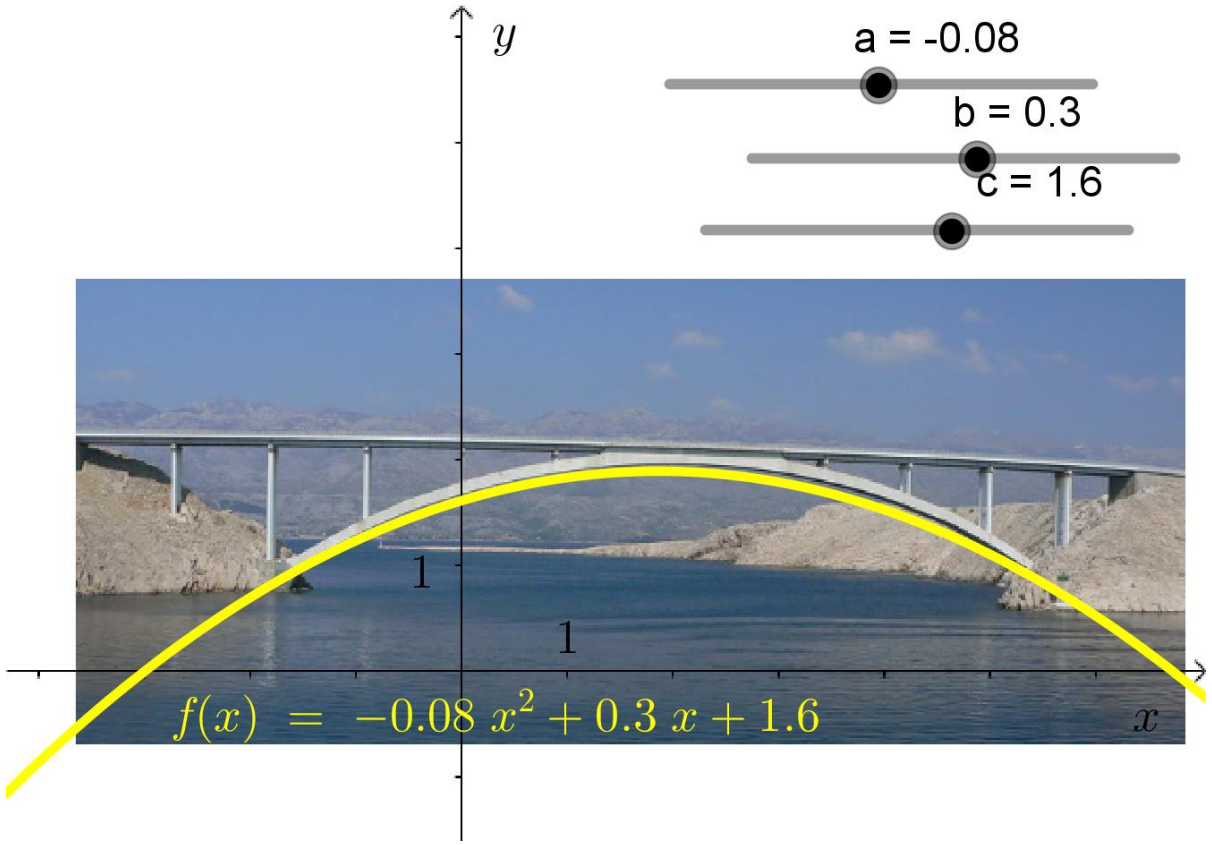
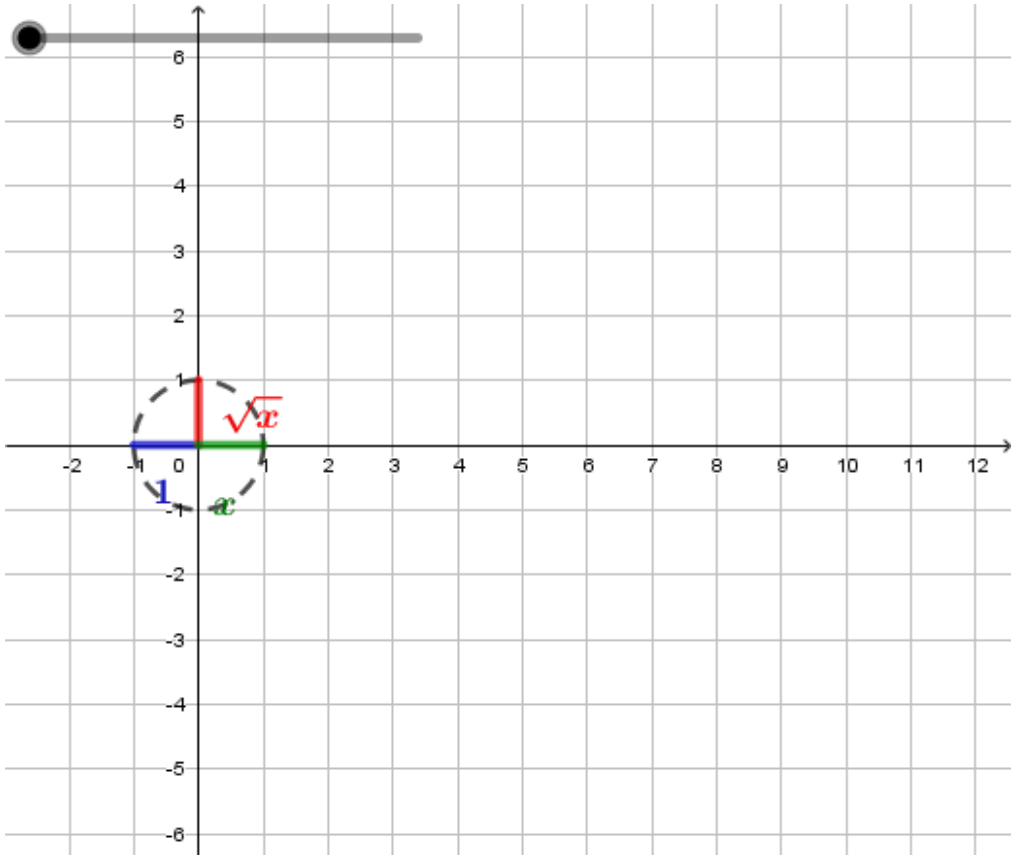
https://www.geogebra.org/m/aWQ2hA85

Učenik = istraživač





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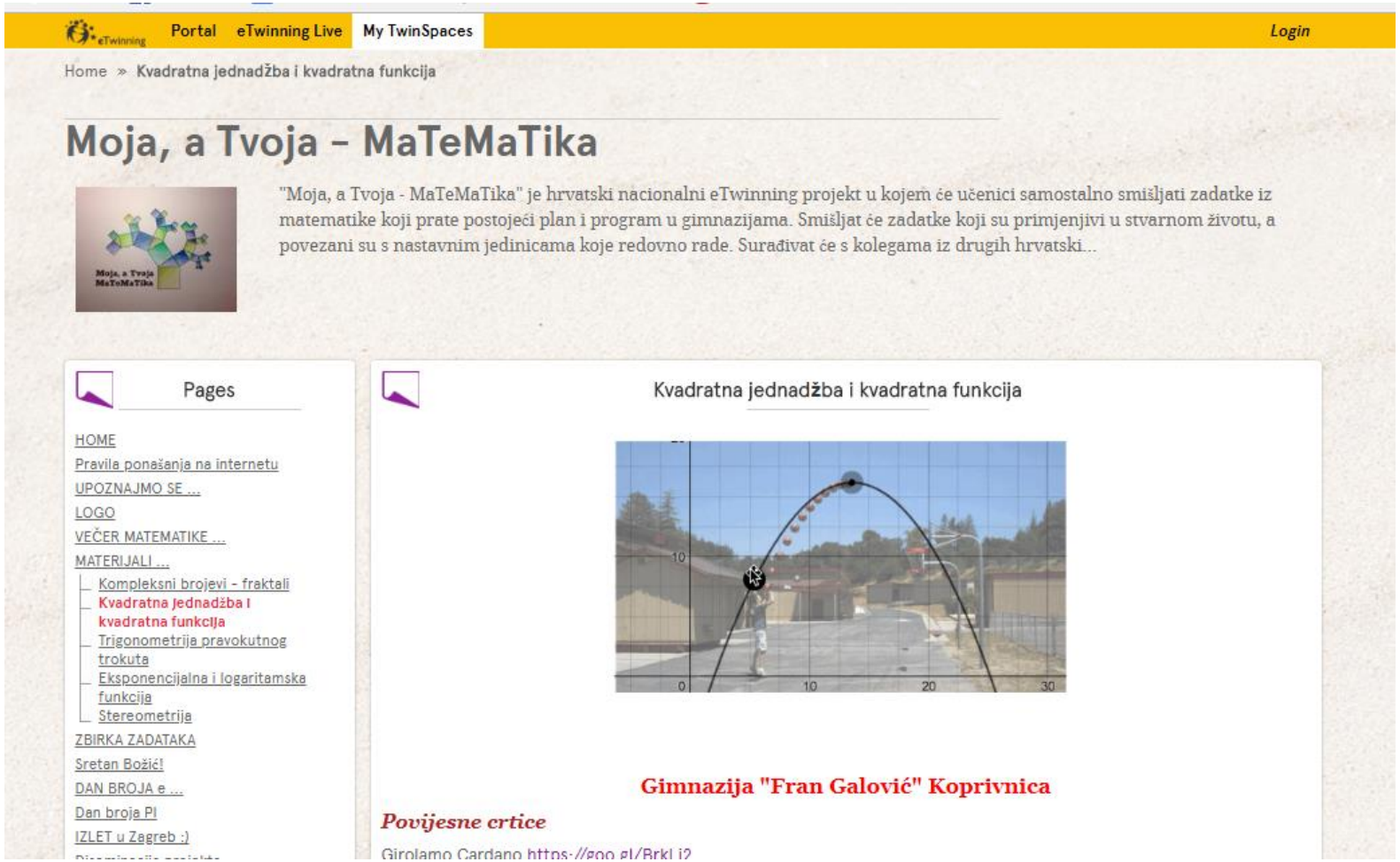
Projekti



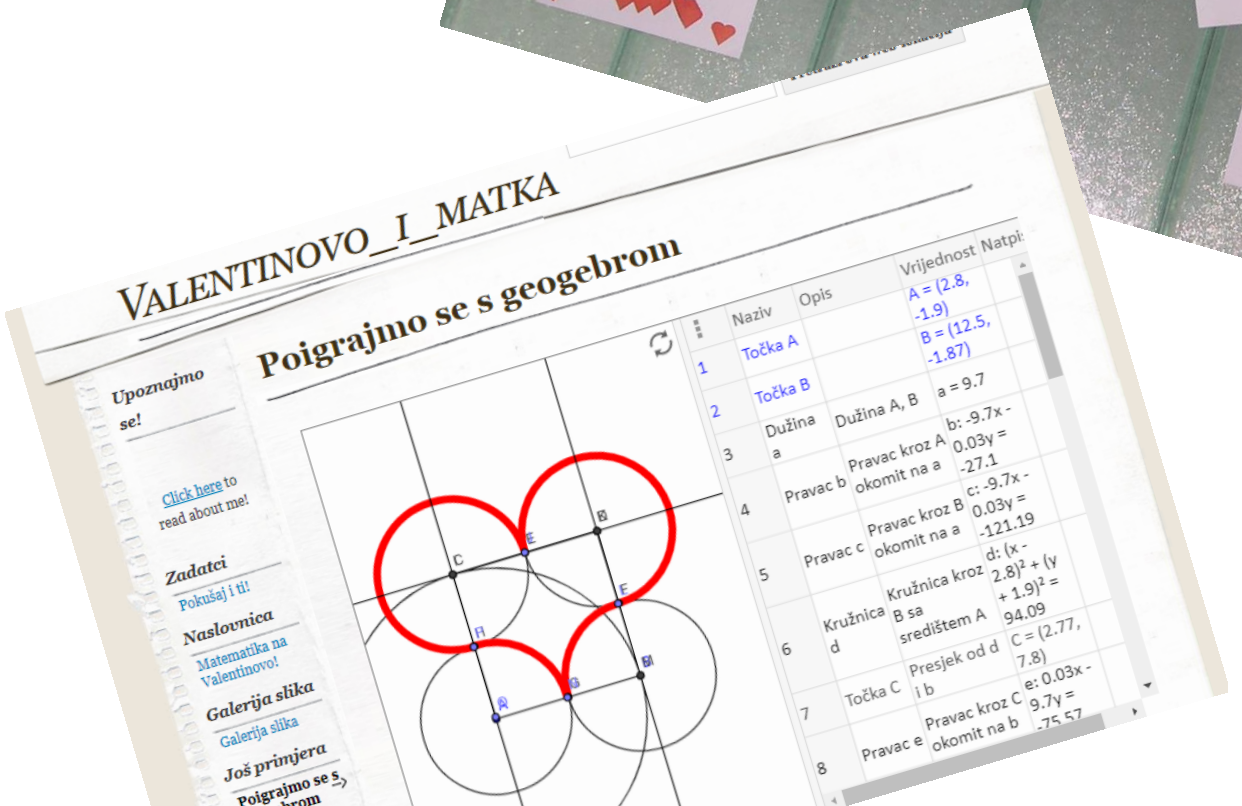
https://twinspace.etwinning.net/24852/pages/page/163027

Digitalno vrijeme
e – knjige u GeoGebri

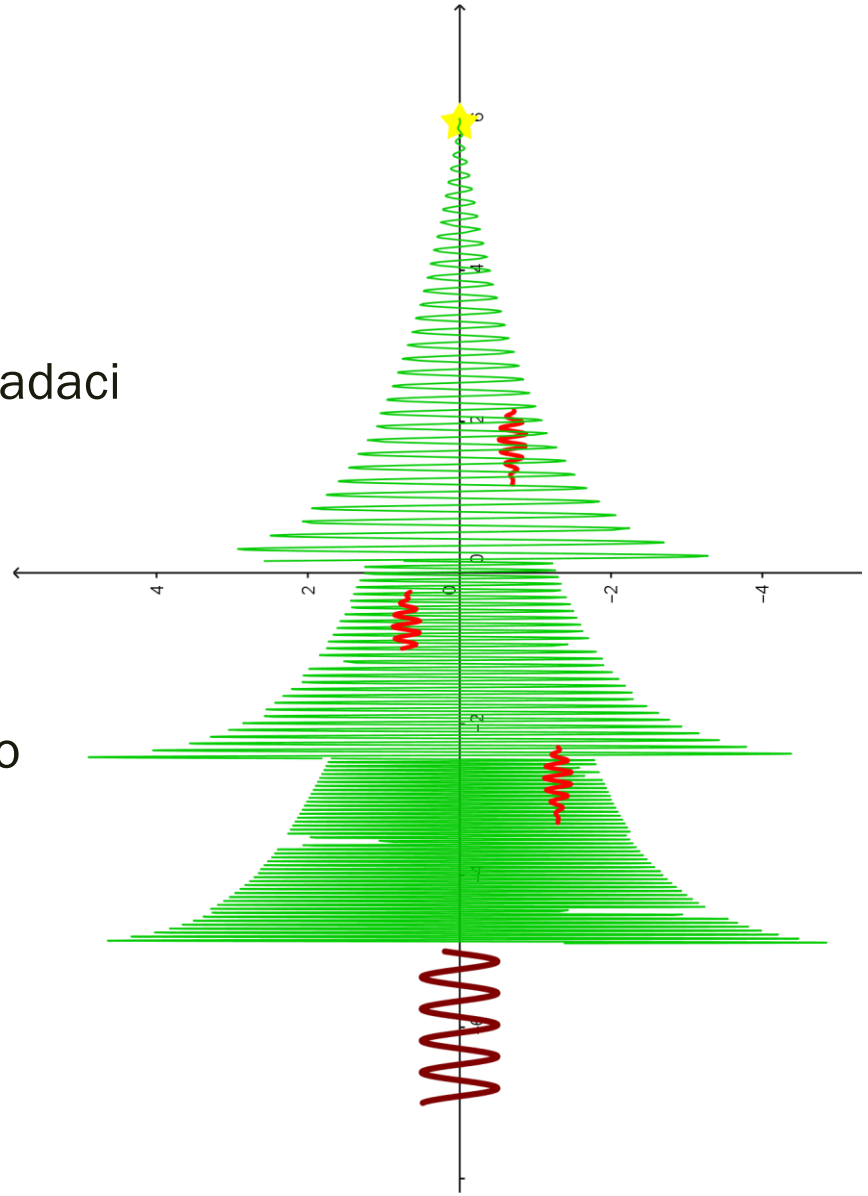
https://www.geogebra.org/m/MjV6DBrw

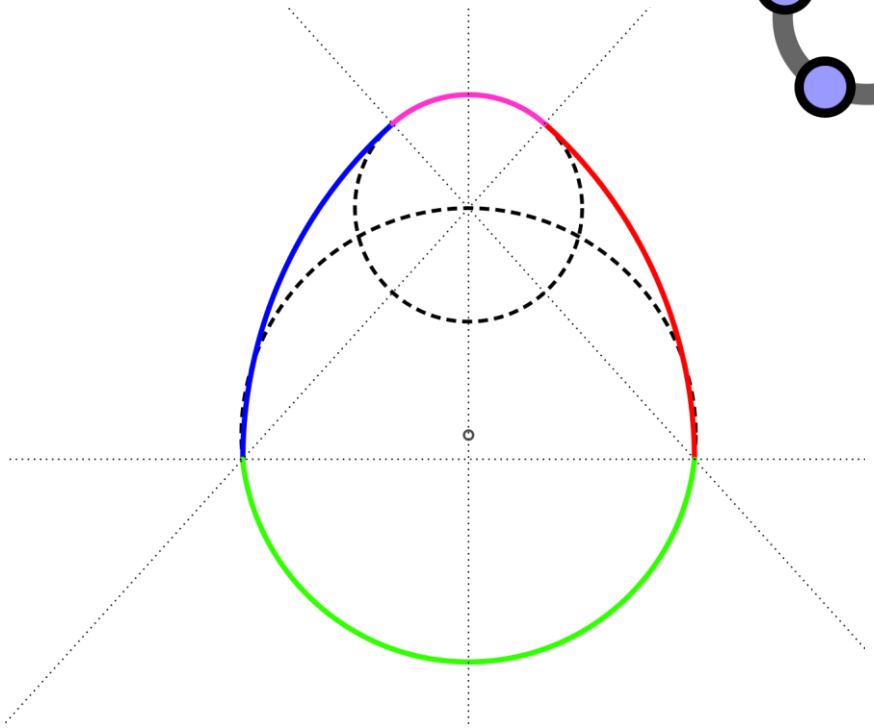
I gdje još?

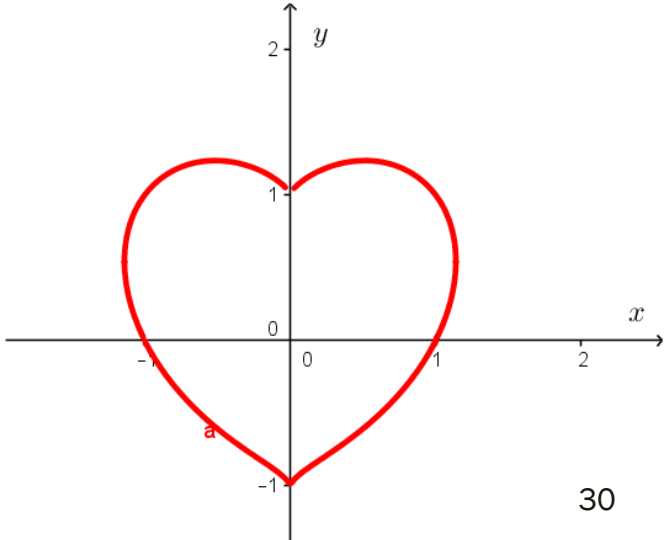
- Web stranice
- Ilustracije
- Školski panoi



- Tematski zadaci
- Čestitke
- Božić
- Uskrs
- Valentinovo





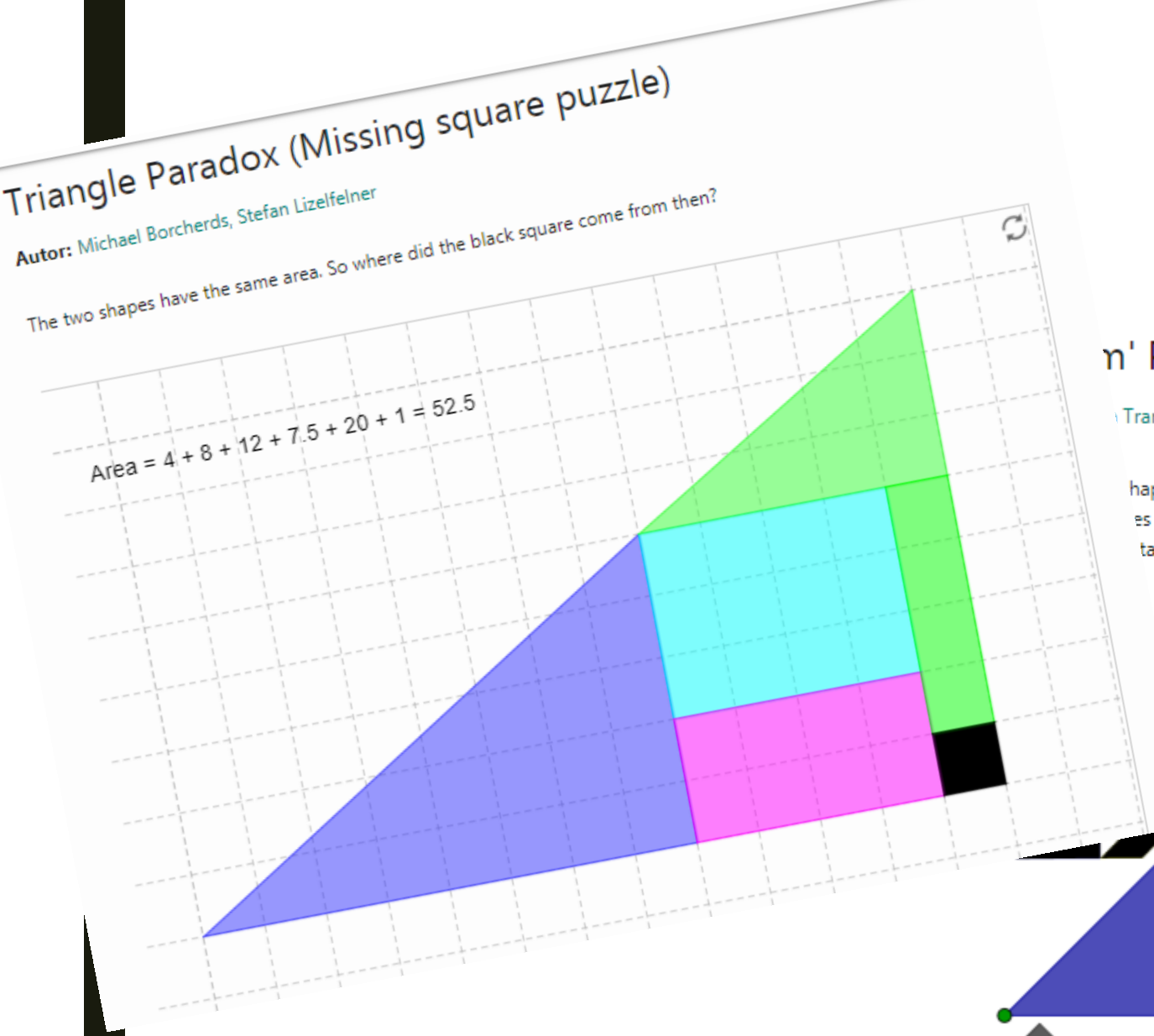


Triangle Paradox (Missing square puzzle)

Autor: Michael Borcherds, Stefan Lizelfelner

The two shapes have the same area. So where did the black square come from then?

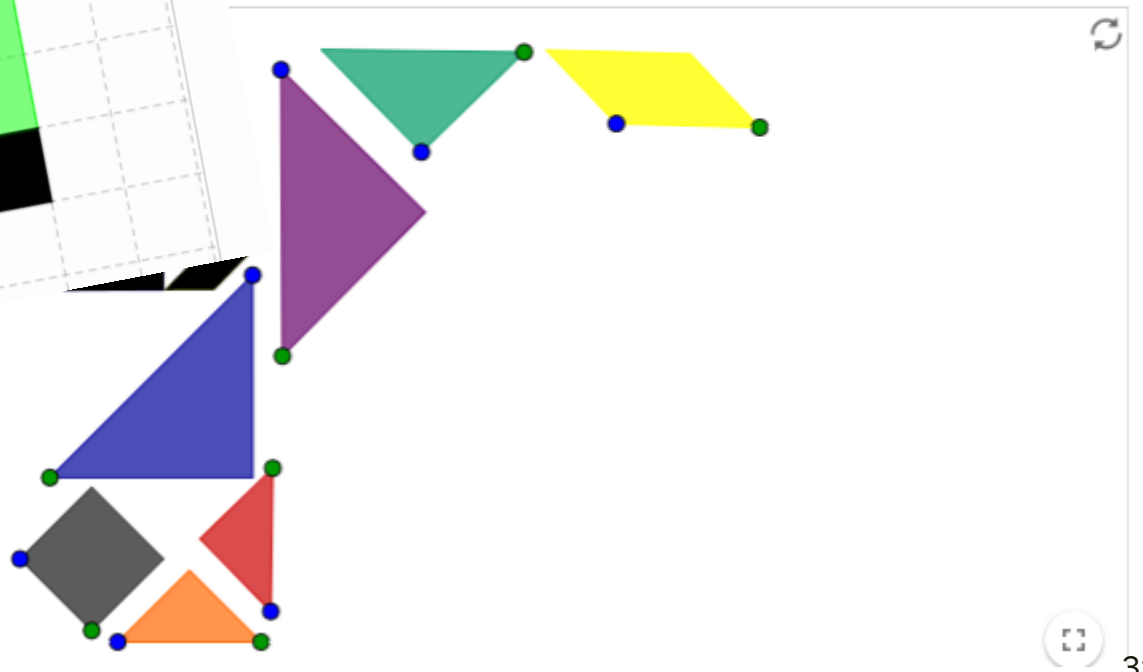
Area = 4 + 8 + 12 + 7.5 + 20 + 1 = 52.5



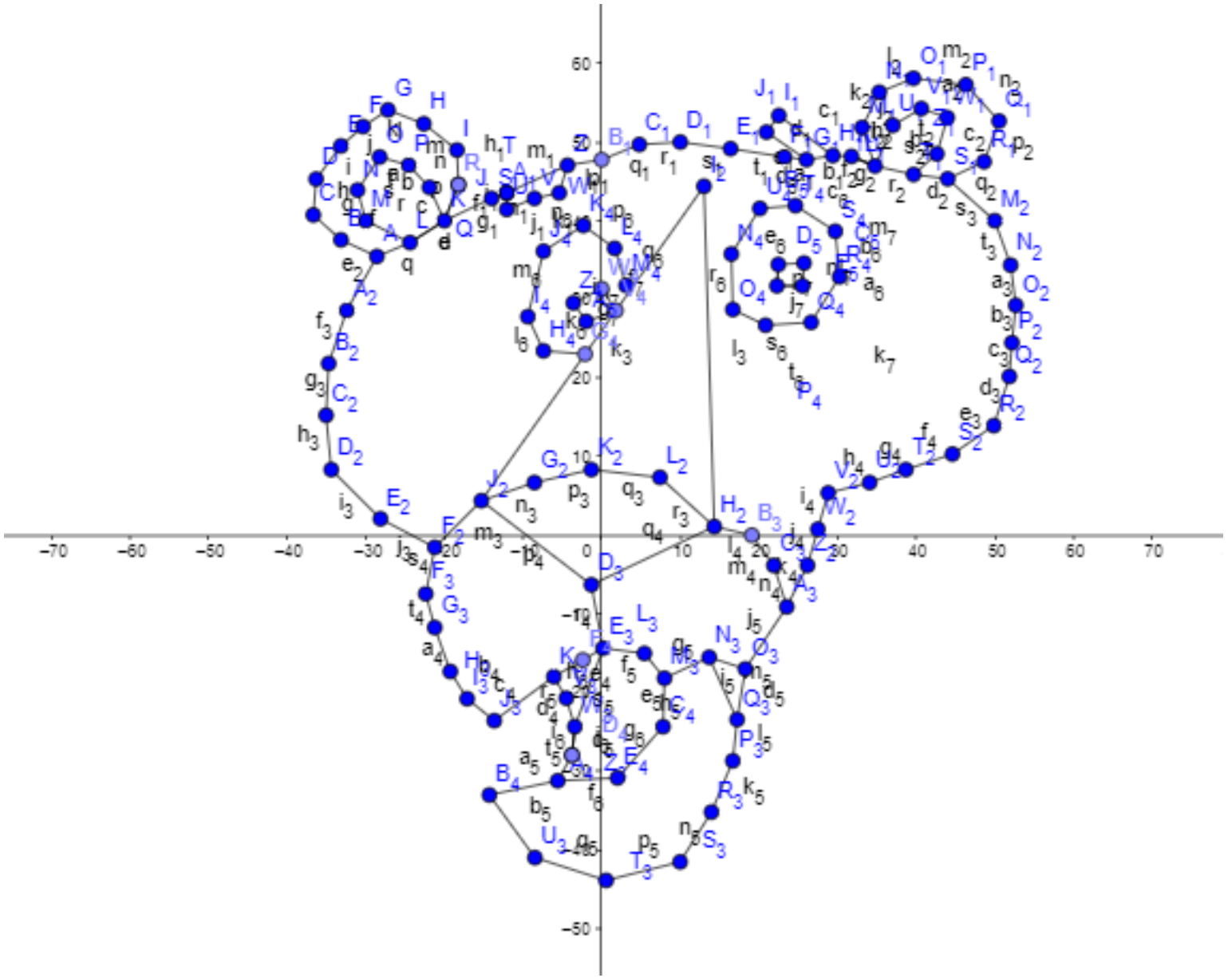
n' Puzzle 'Cat'

Translation Team German

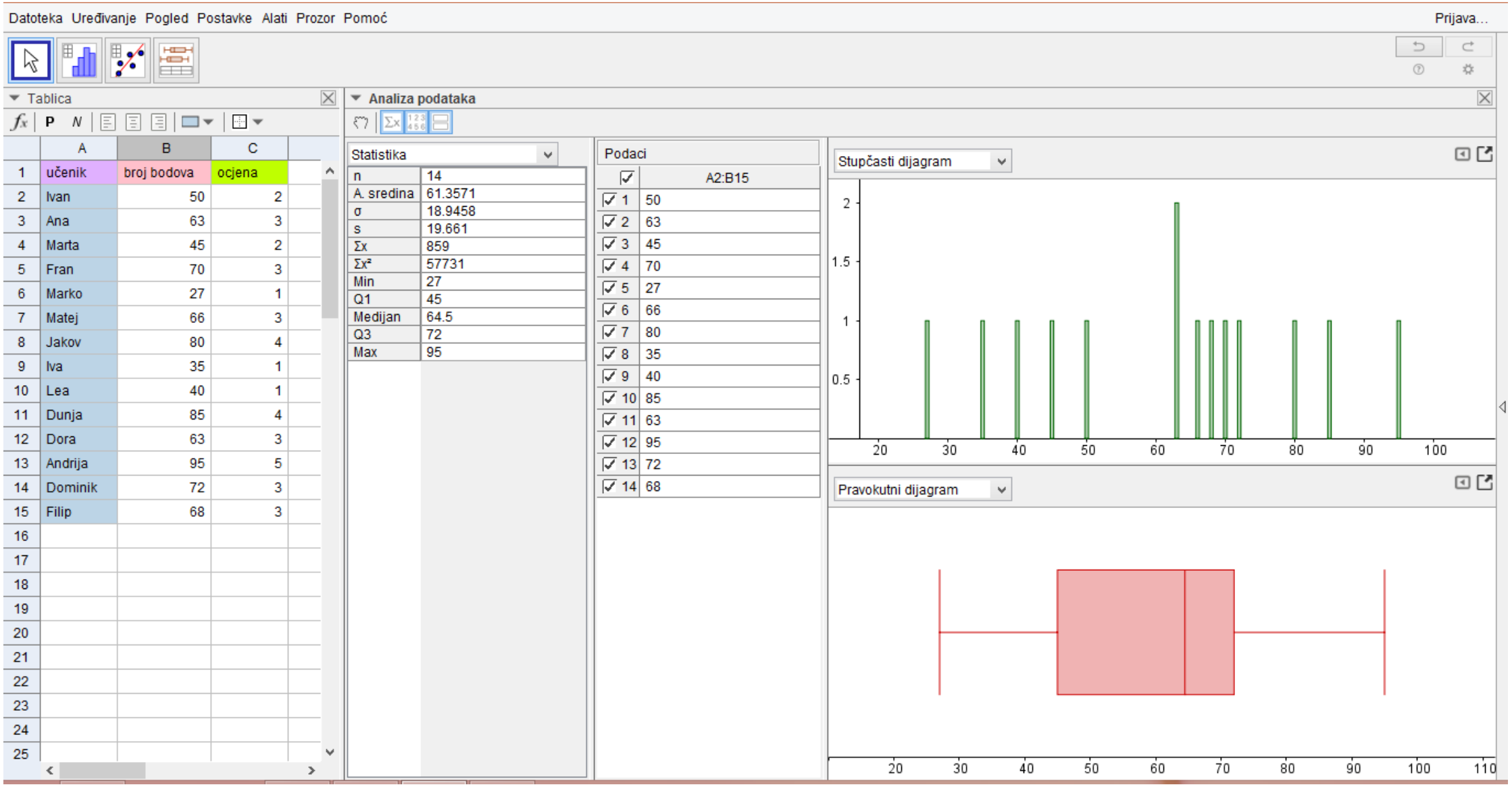
hapes below in order to recreate the cat shown. You can translate the shapes by dragging the blue points. You
es by dragging the green points with the mouse. Click the little icon in the upper right corner in order to reset
tart over.



Učenički radovi



Razredna statistika



	A	B	C
1	učenik	broj bodova	ocjena
2	Ivan	50	2
3	Ana	63	3
4	Marta	45	2
5	Fran	70	3
6	Marko	27	1
7	Matej	66	3
8	Jakov	80	4
9	Iva	35	1
10	Lea	40	1
11	Dunja	85	4
12	Dora	63	3
13	Andrija	95	5
14	Dominik	72	3
15	Filip	68	3

Gdje i kako naučiti GeoGebru?

https://www.geogebra.org/m/eehF54nU

https://www.geogebra.org/search/%C5%A0ime%20%C5

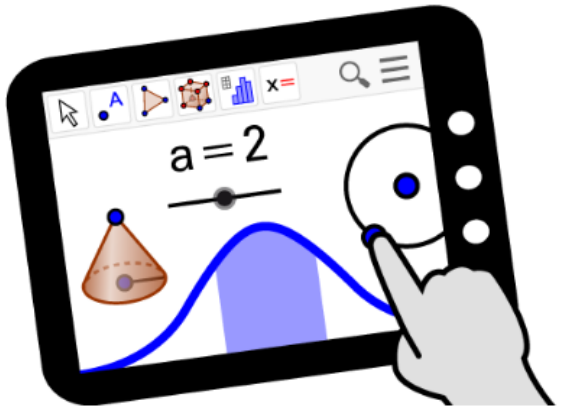
https://www.geogebra.org/search/%C5%BEel

https://www.geogebra.org/m/Wv

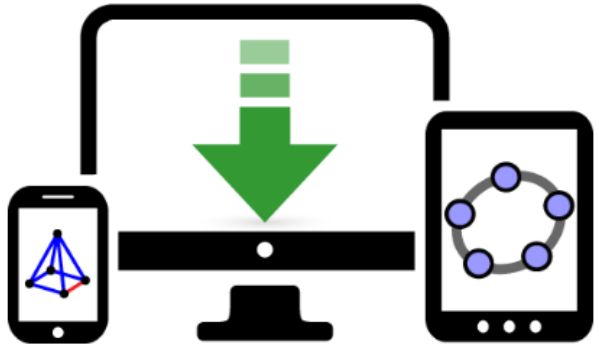
- Online pomoć – priručnic
- Facebook grupa
- Istraživanje GeoGebre

Uvjeti

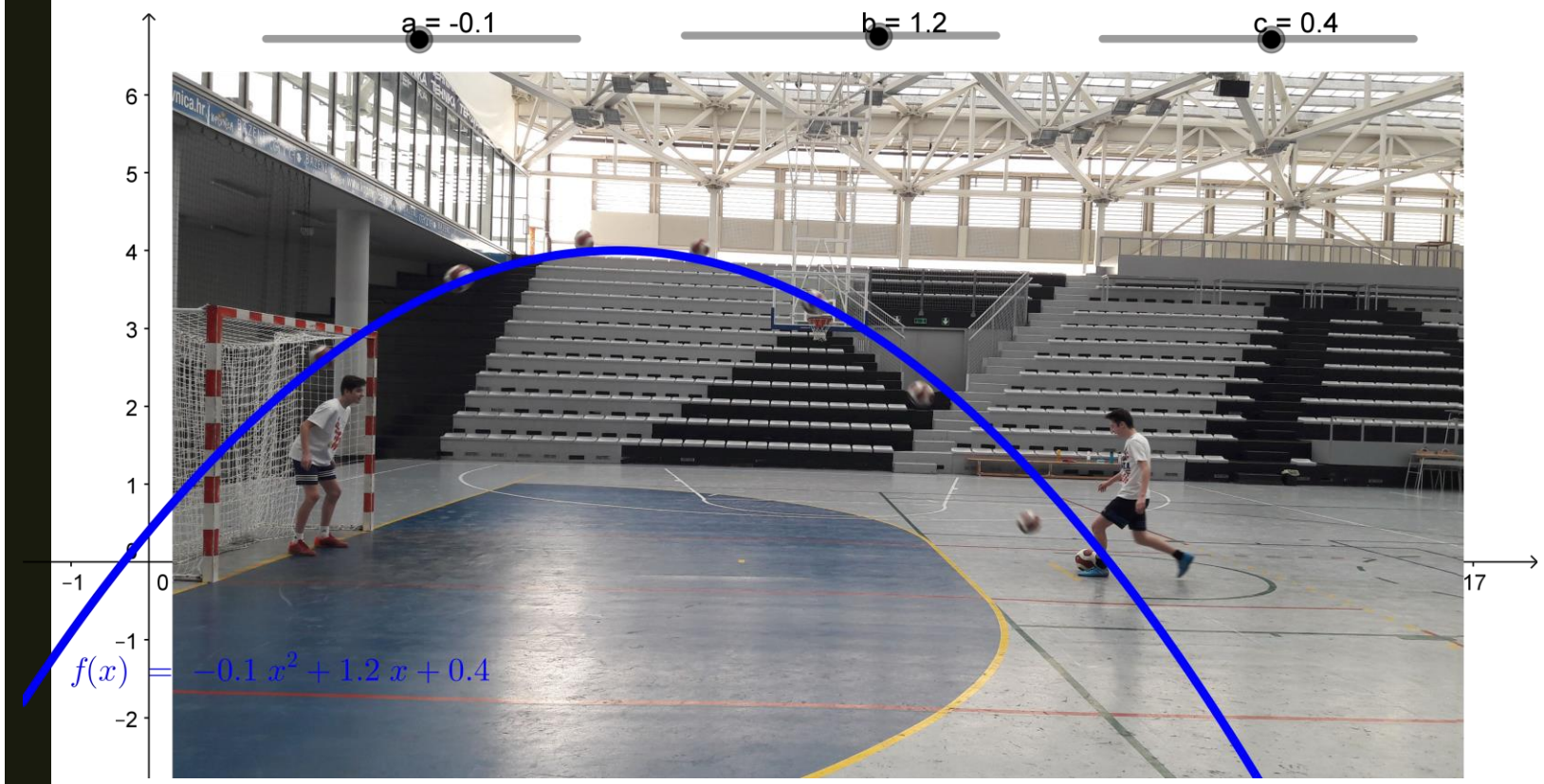
Materials



GeoGebra Math Apps



Budimo u trendu

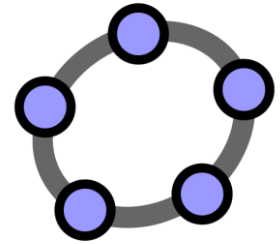


Geometry of a soccer ball / football

Autor: Prof.pantaloni

Truncated icosahedron gives a soccer ball.
An icosahedron has 20 faces and 12 vertices.
So on the ball, how many pentagons? Hexagons?

https://www.geogebra.org/m/CnEfCW63



Hvala!

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