

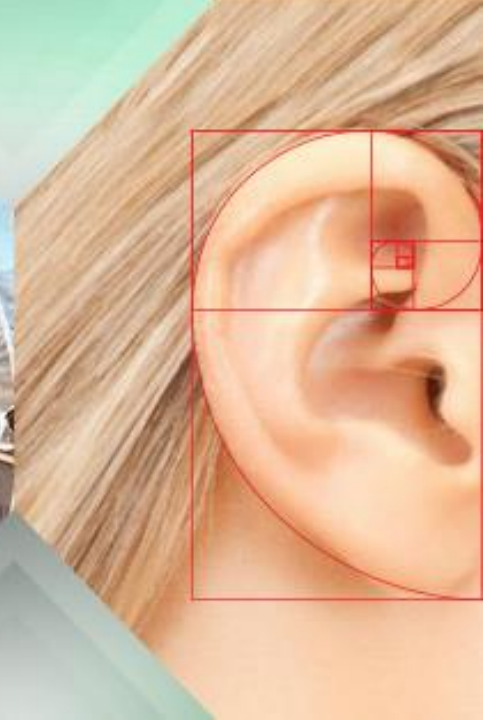
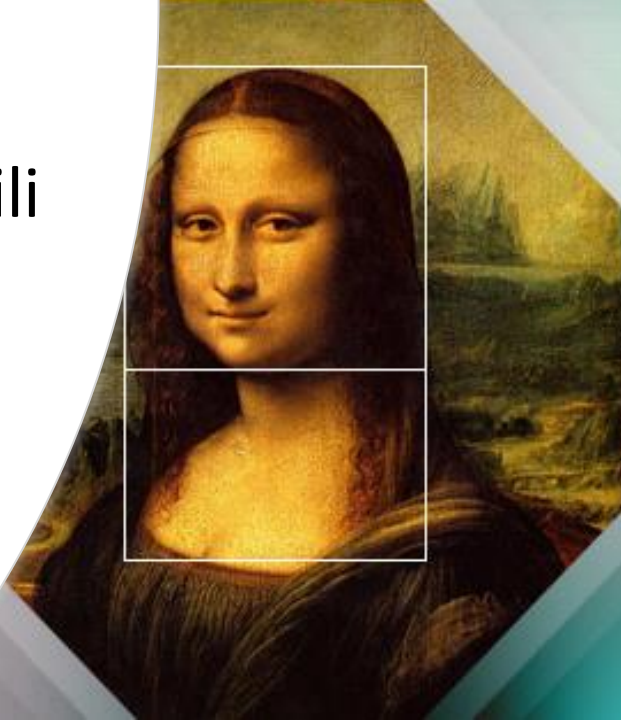


# GOLDEN RATIO

Zlatni rez – matematika  
ljepote ili ljepota matematike....

Mateja Jurjako, prof.

- 
- Postoji li matematička formula za ljepotu?
  - Zašto je nešto lijepo ili ugodno oku?



AD

Google oglasi

Više ne prikazuj oglas

Zašto ovaj oglas? ⓘ

# Zlatni rez presudio: Ovo je najljepša žena svijeta

Zadnja nadopuna: 22:42, 11. listopada 2022.

🔗 Podijeli 2 tis.



AD

Google oglasi

Više ne prikazuj oglas

Zašto ovaj oglas? ⓘ

NAJNOVIJE

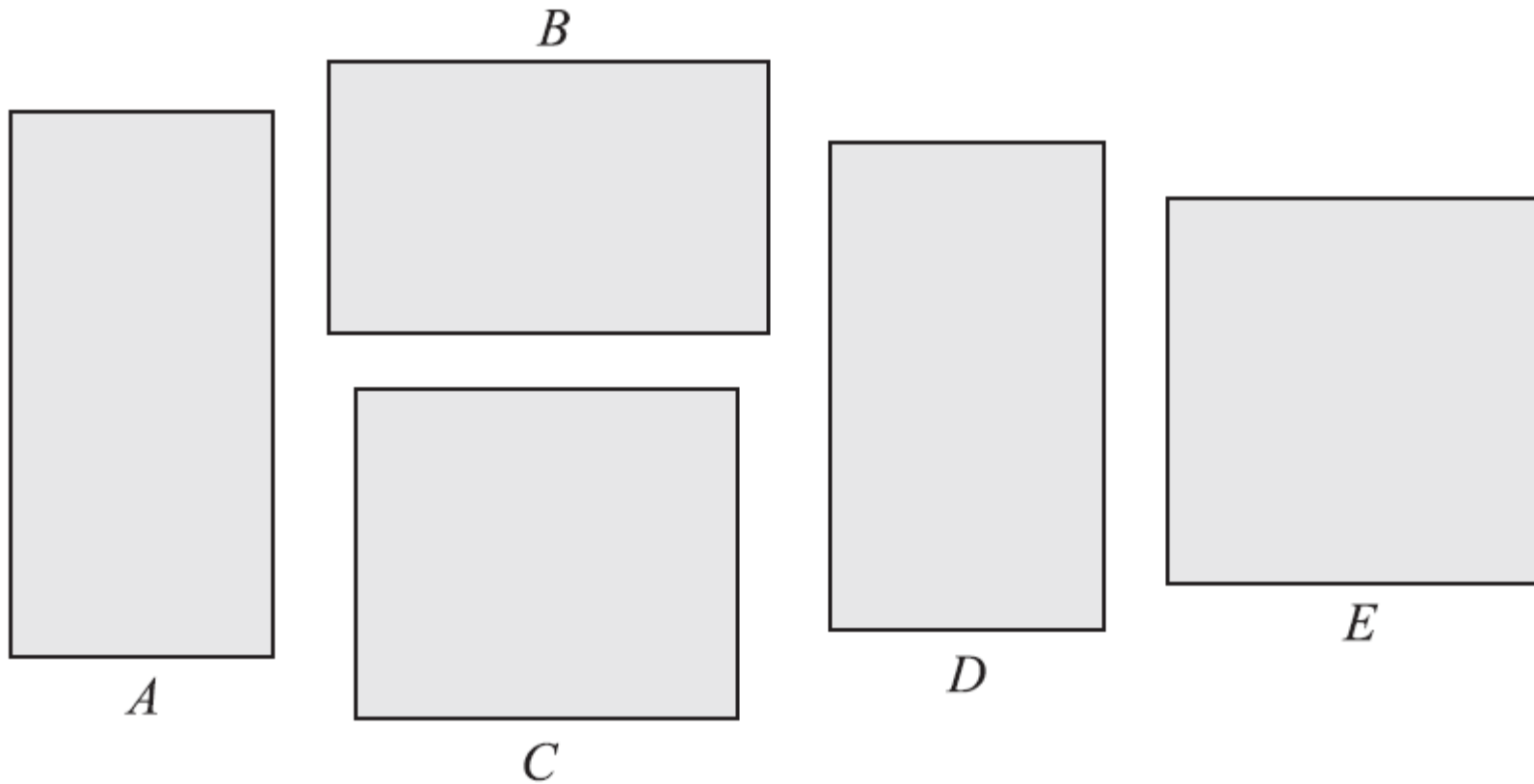
NAJČITANIJE

VEZANO

Skiciraj neki pravokutnik...

Tvoj pravokutnik izgleda poput: A B C D E ?

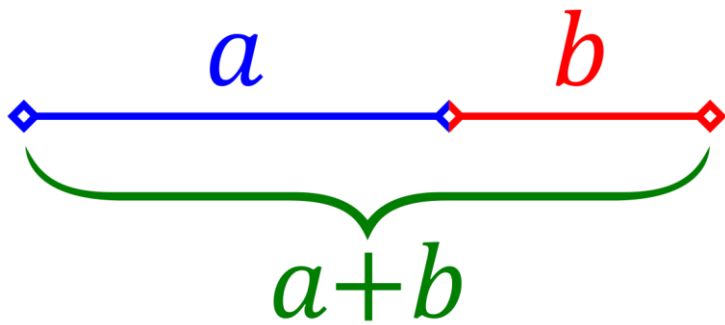
Koji pravokutnik od ponuđenih ti je oku najugodniji?



# Što je zlatni rez (zlatni omjer)?

- Zlatni rez predstavlja omjer dijelova neke dužine tako da vrijedi:

cijela dužina : veći dio = veći dio : manji dio

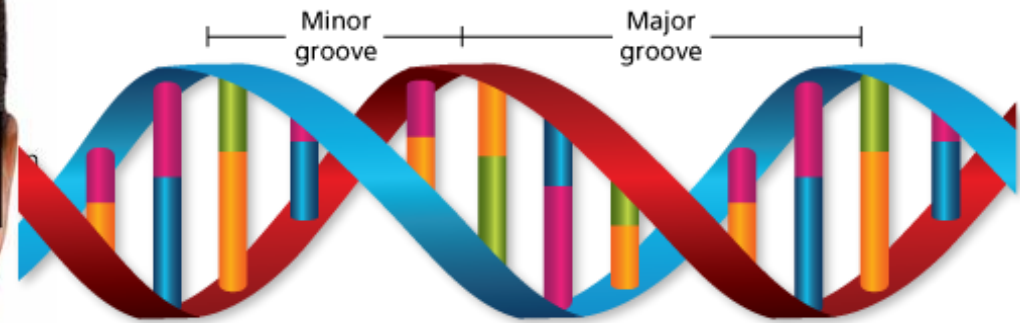
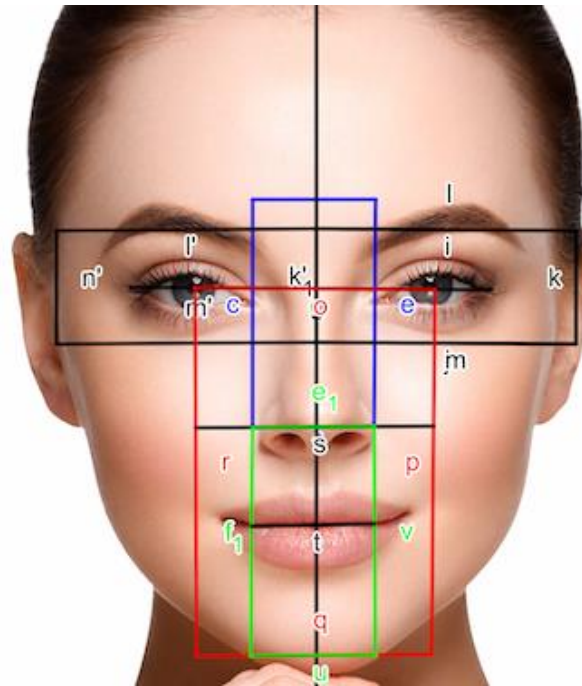
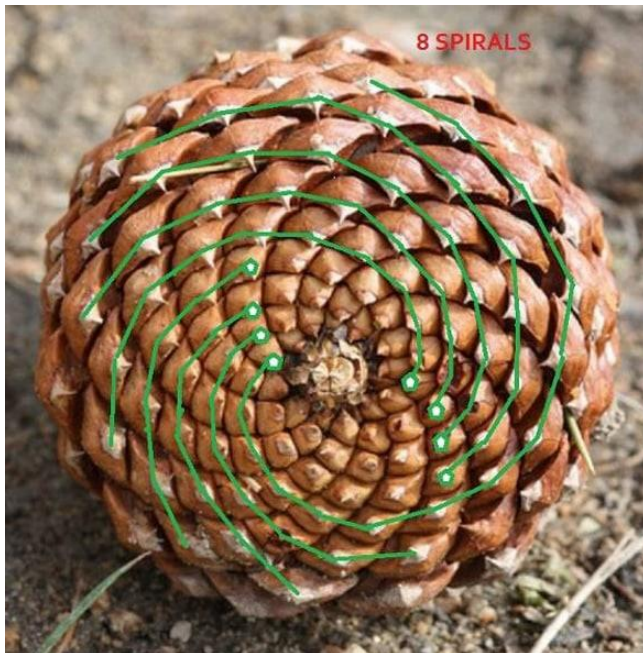


$$\frac{a+b}{a} = \frac{a}{b} = 1.618$$

fi (phi)  $\varphi = \frac{\sqrt{5} + 1}{2} \approx 1,618\,033\,988\,749\,894\,848\dots$  IRACIONALNI BROJ

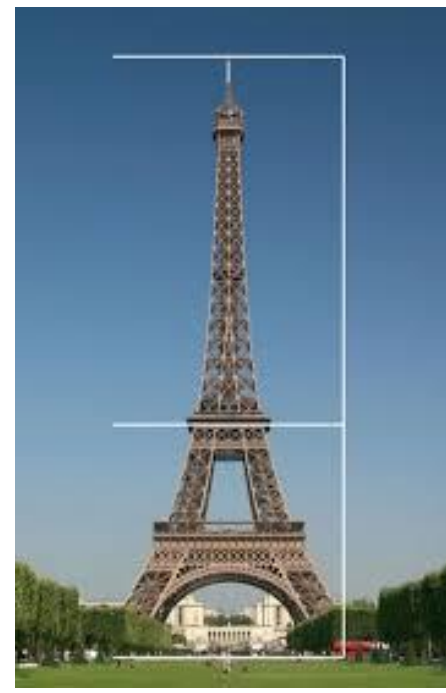
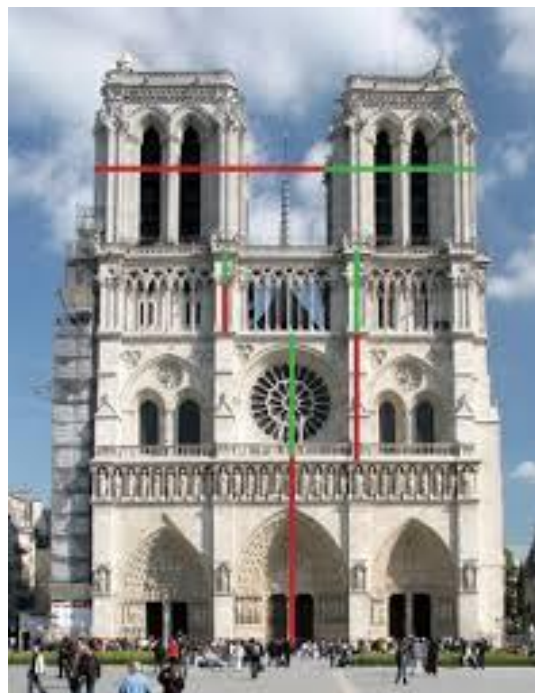
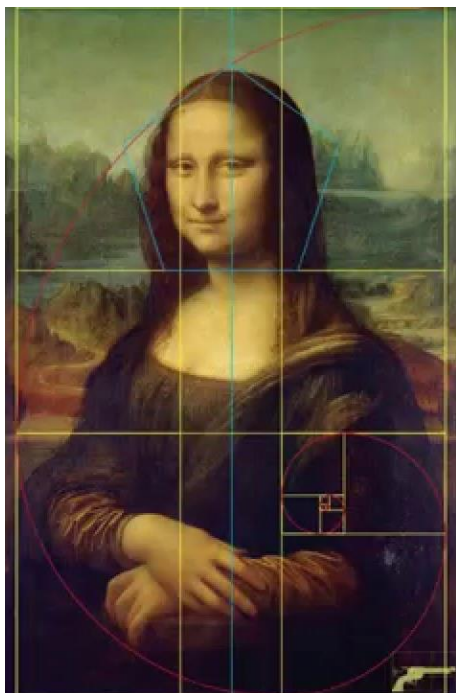
# „Božanski omjer“

Odnosi mjera kod biljaka, životinja i ljudi, sa zapanjujućom preciznošću se približavaju broju  $\phi$ .



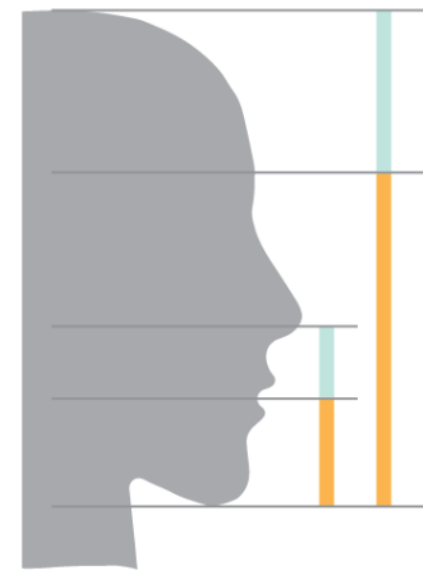
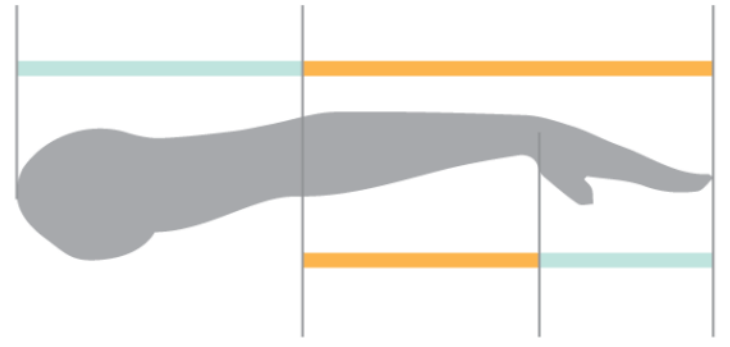
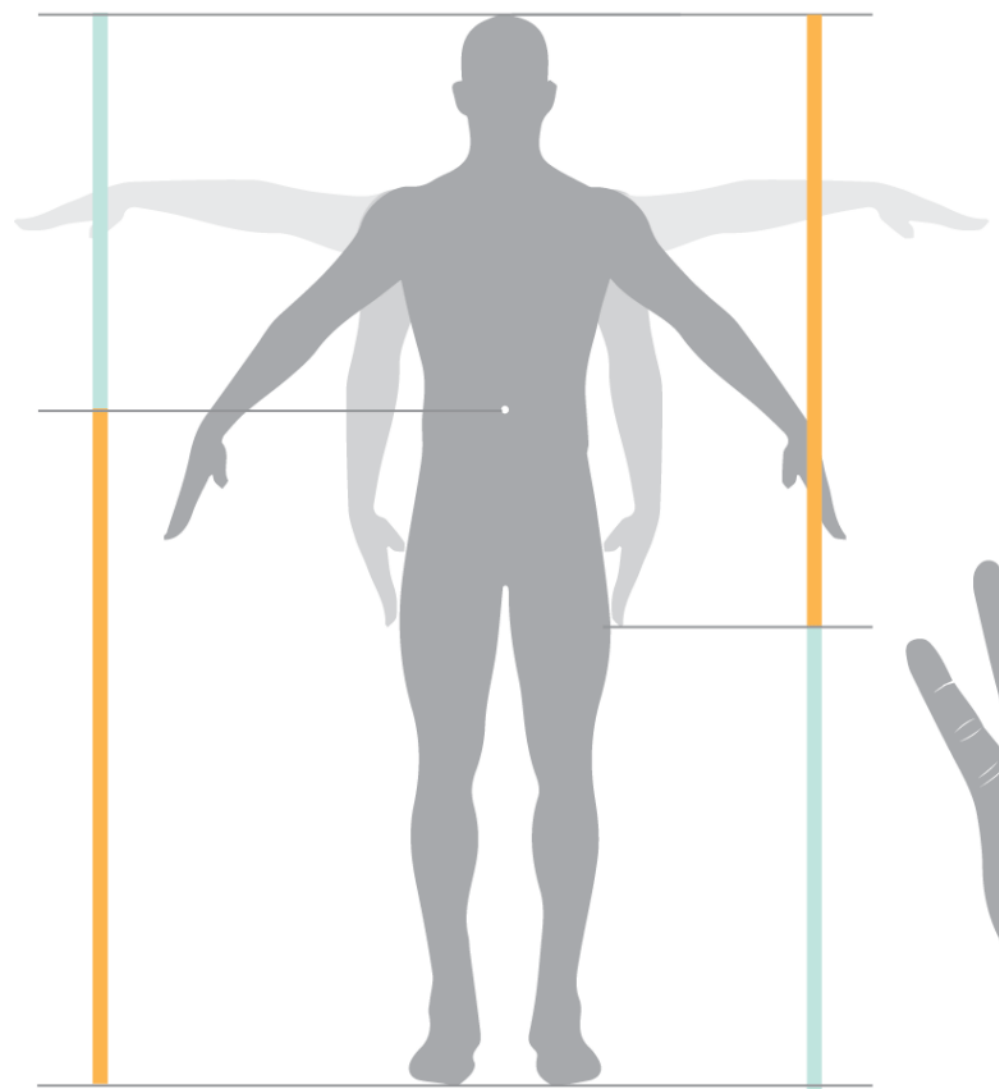
U arhitekturi i umjetnosti zlatni rez nerijetko se smatrao idealnom proporcijom i poistovjećivao sa skladom.

U različitim predmetima, slikama, primijenjenoj umjetnosti, pa i ljudskom tijelu, zlatni rez uvjetuje svojim skladnim odnosima najsnažniji doživljaj ljepote.



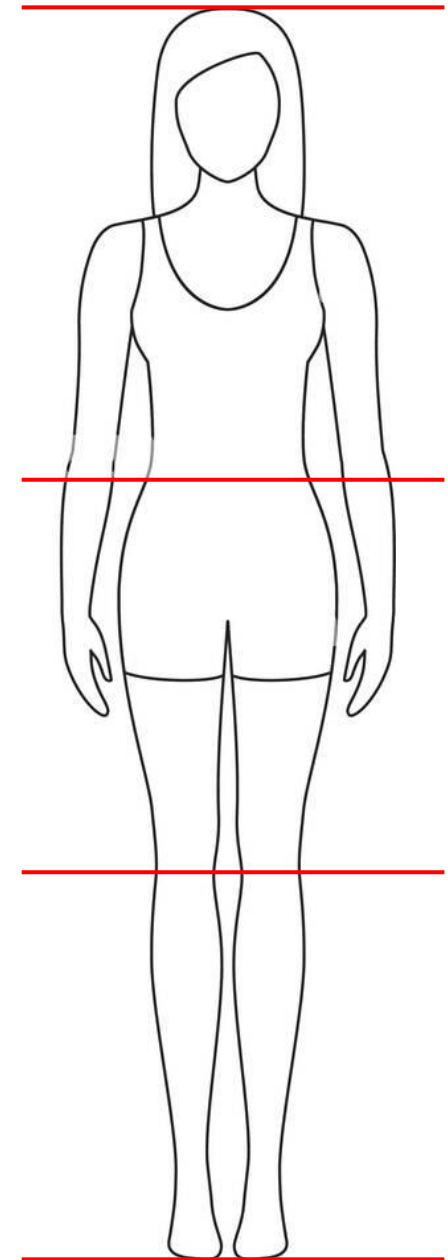
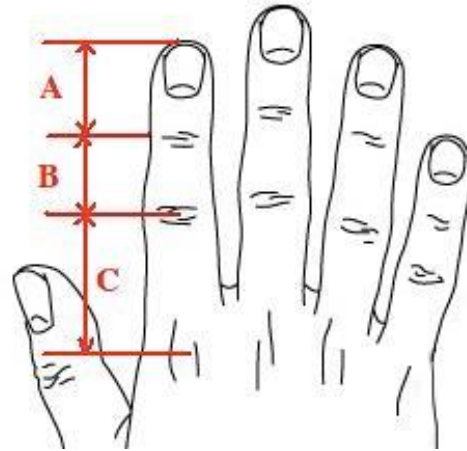
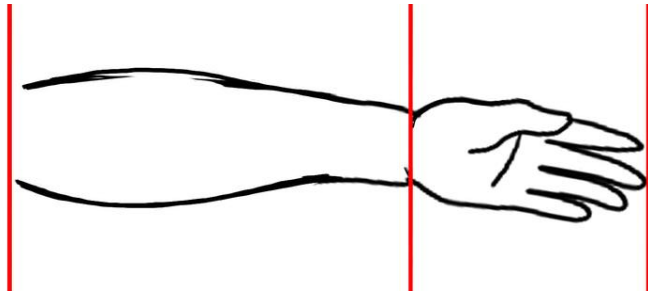


$$\frac{(a+b)}{b} = 1.618$$

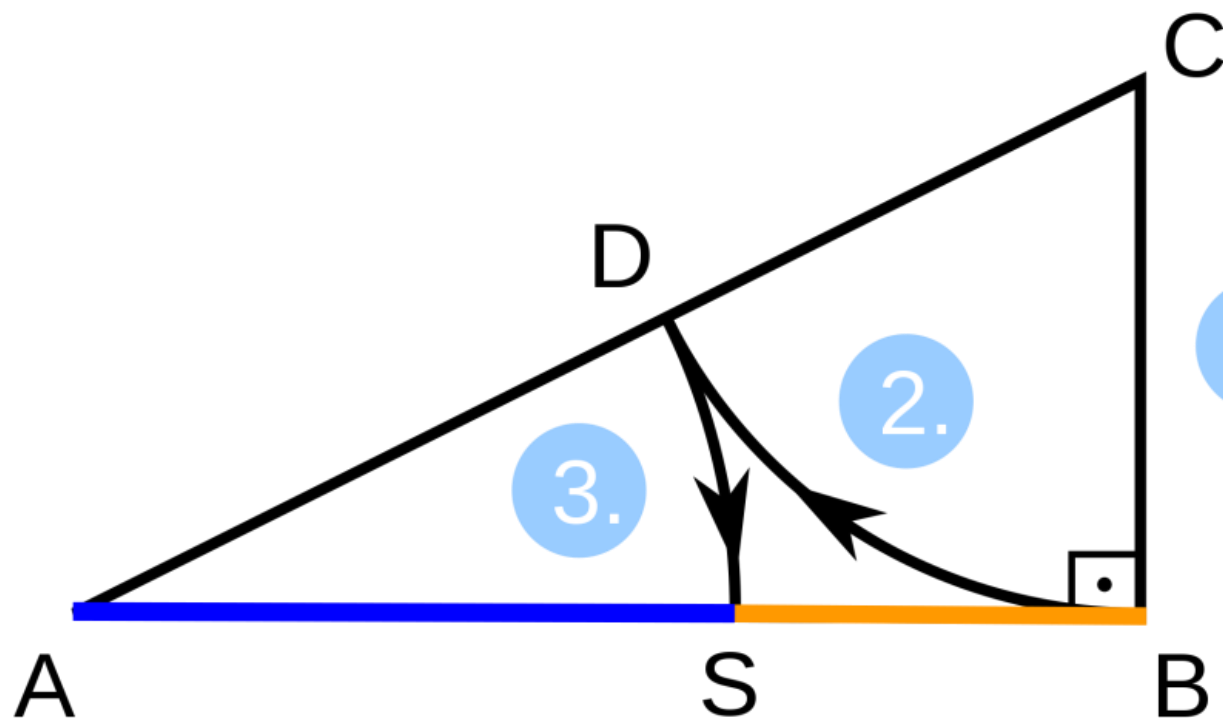


# Pokus – jesmo li zlatni?

- |   |
|---|
| 1. Udaljenost od tla do pupka / Udaljenost od pupka do vrha glave       |
| 2. Udaljenost od tla do pupka / Udaljenost od tla do koljena            |
| 3. Udaljenost C / Udaljenost B  |
| 4. Udaljenost od lakta do vrha prstiju / udaljenost od lakta do zapešća |



# Podjela dužine u zlatnom rezu

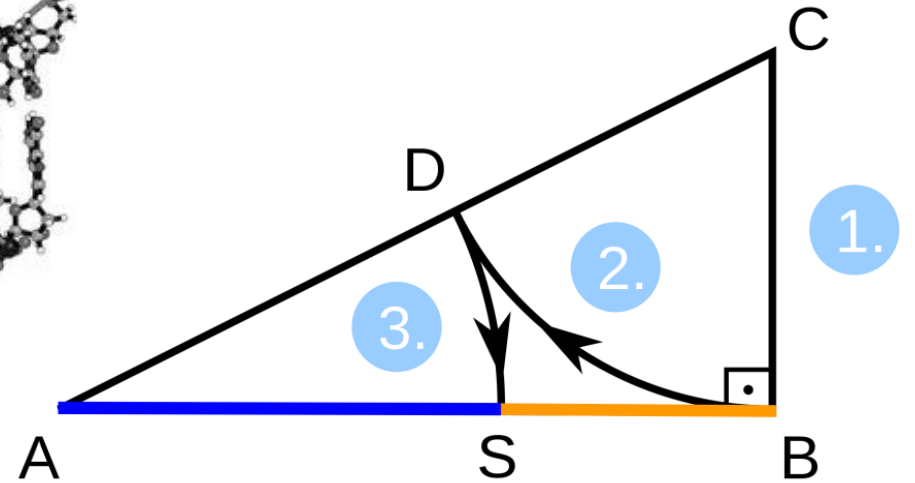
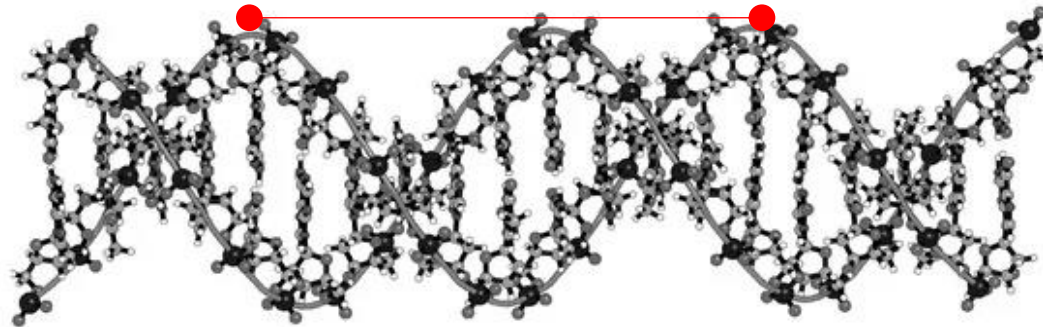


Pravokutni trokut s  
katetama u omjeru  
 $1 : 2$

*Dužina BC je pola  
dužine AB*

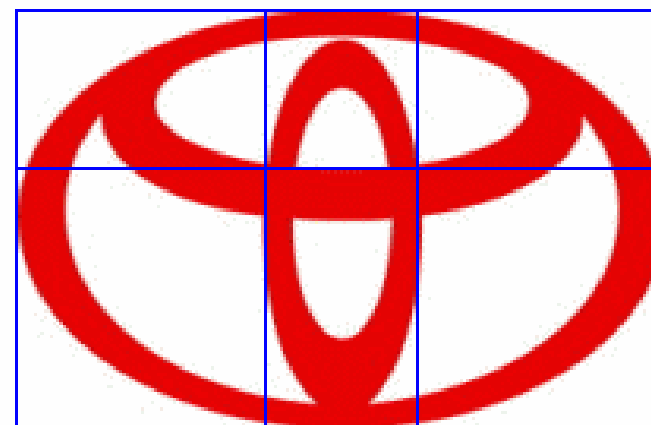
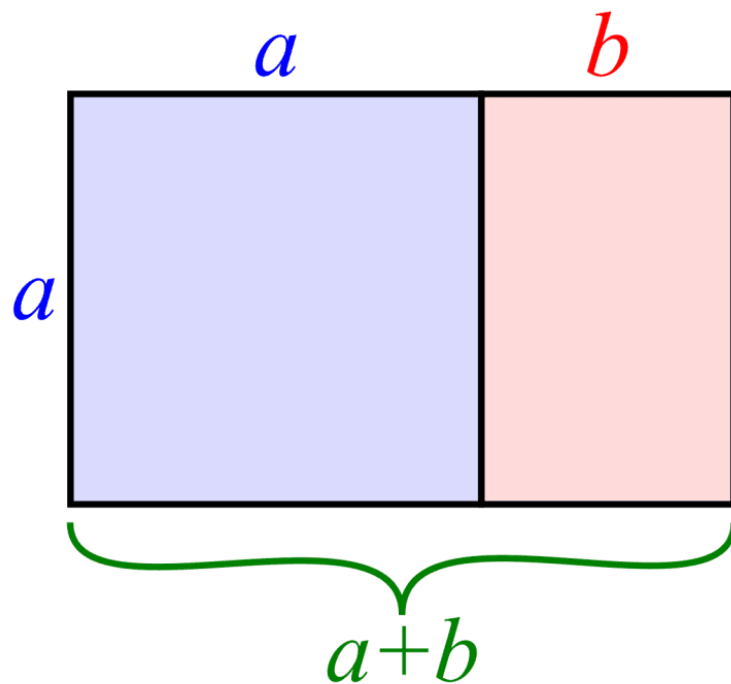
# Zadatak

- Na molekuli DNA podijelite zadanu dužinu u zlatnom omjeru.

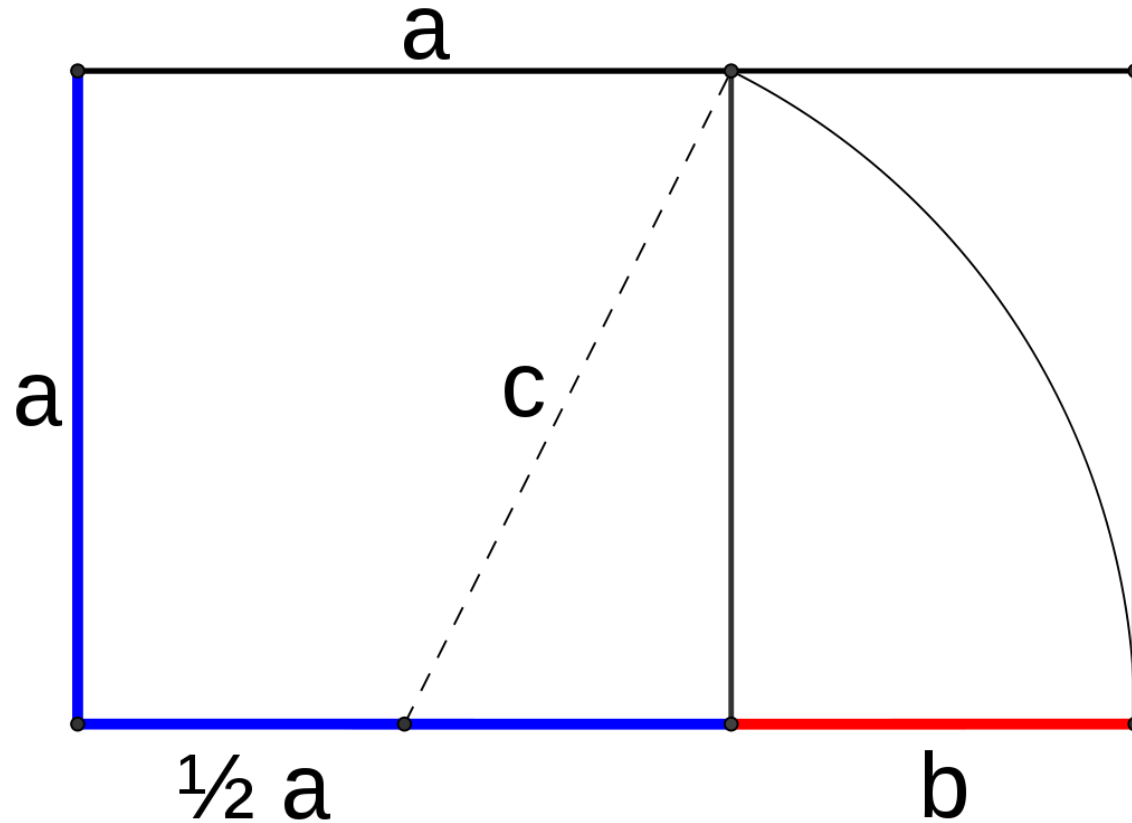


Računski provjeri da  $AB : AS = \varphi$

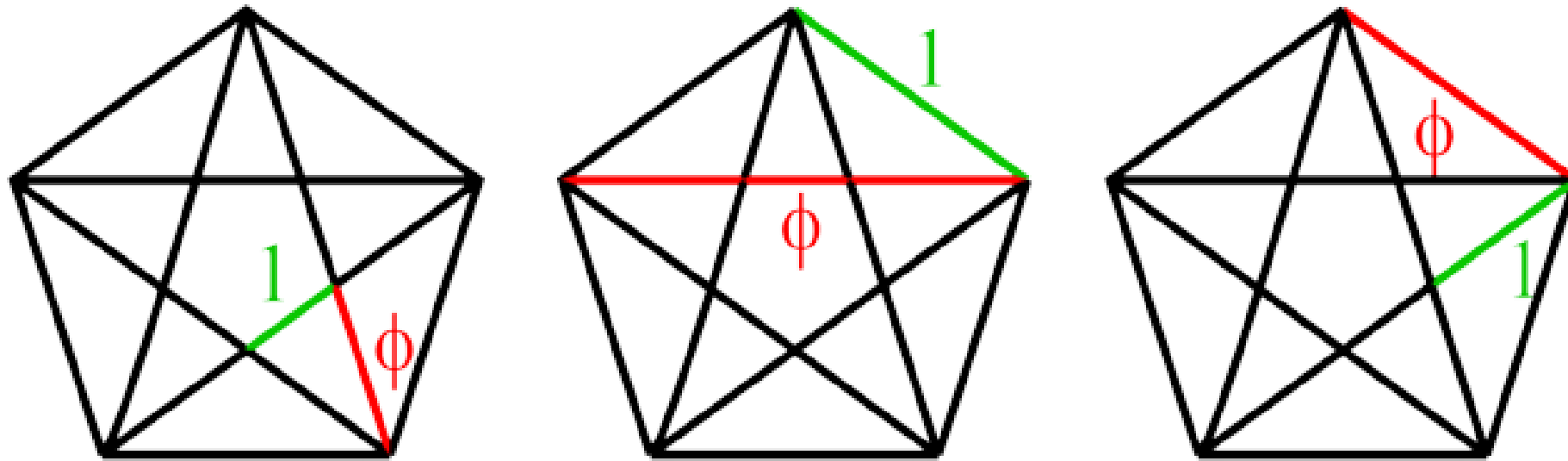
# Zlatni pravokutnik



# Konstrukcija zlatnog pravokutnika

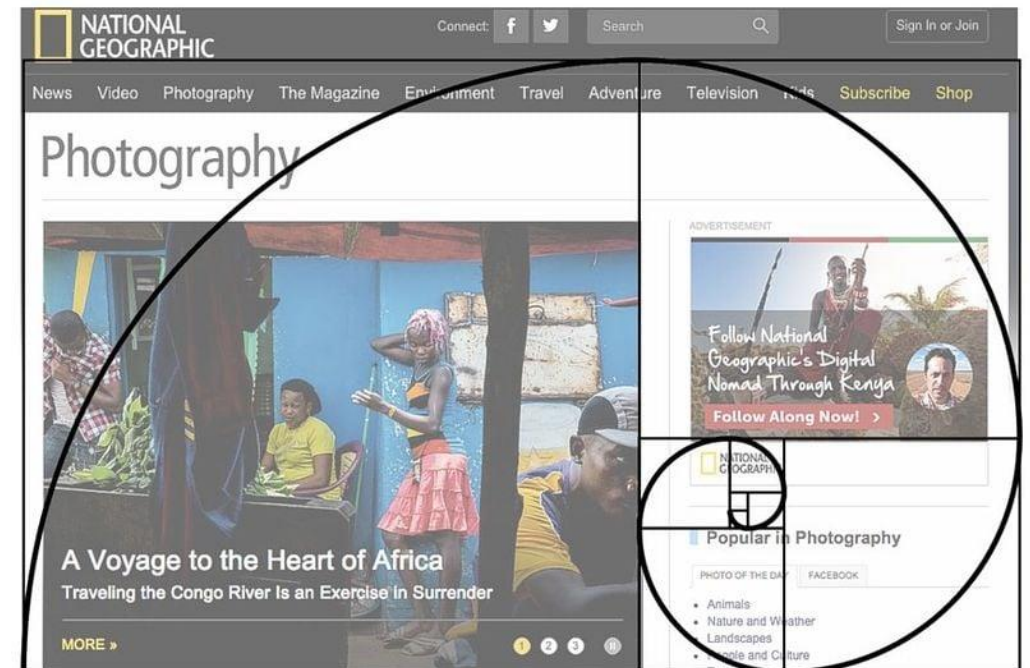
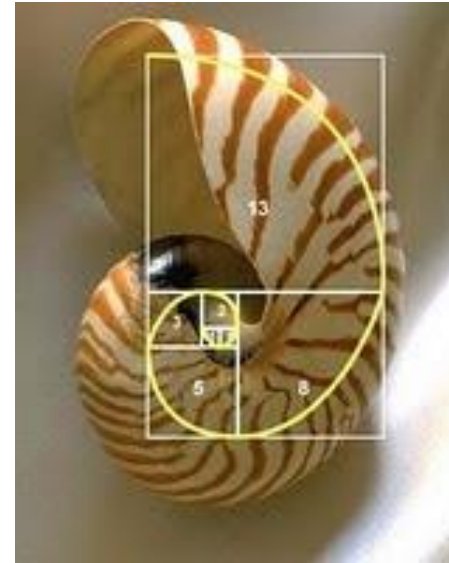
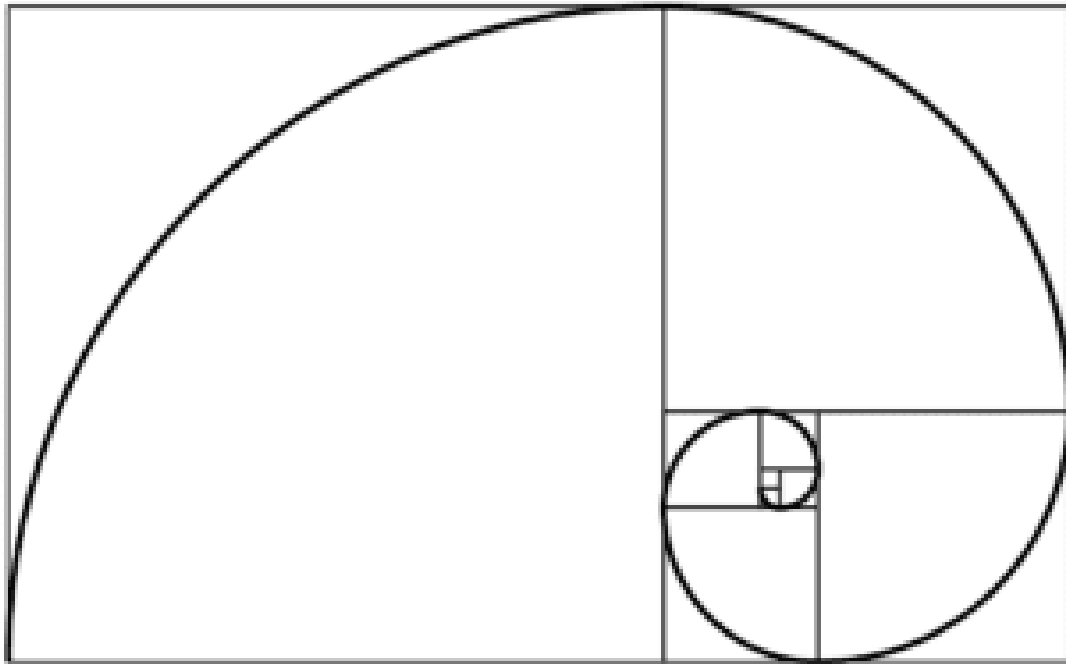


# Dijagonale pravilnog peterokuta

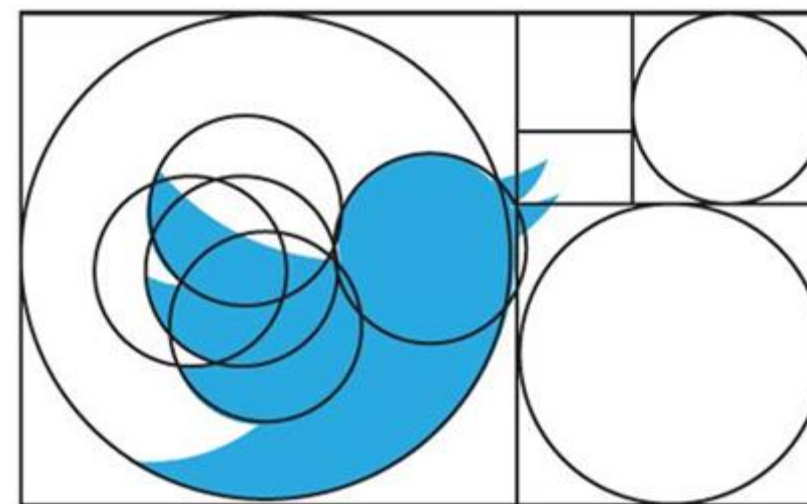
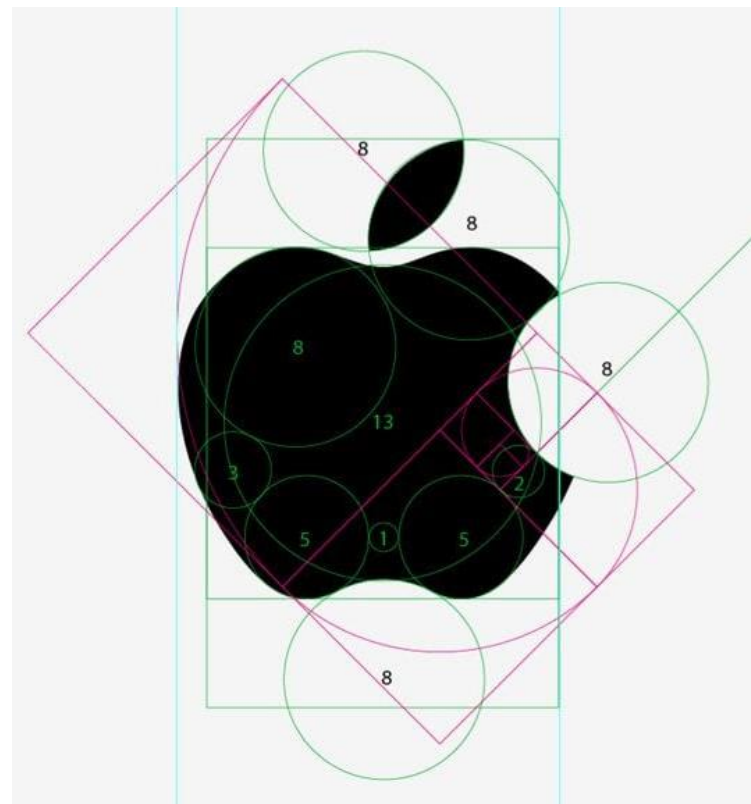
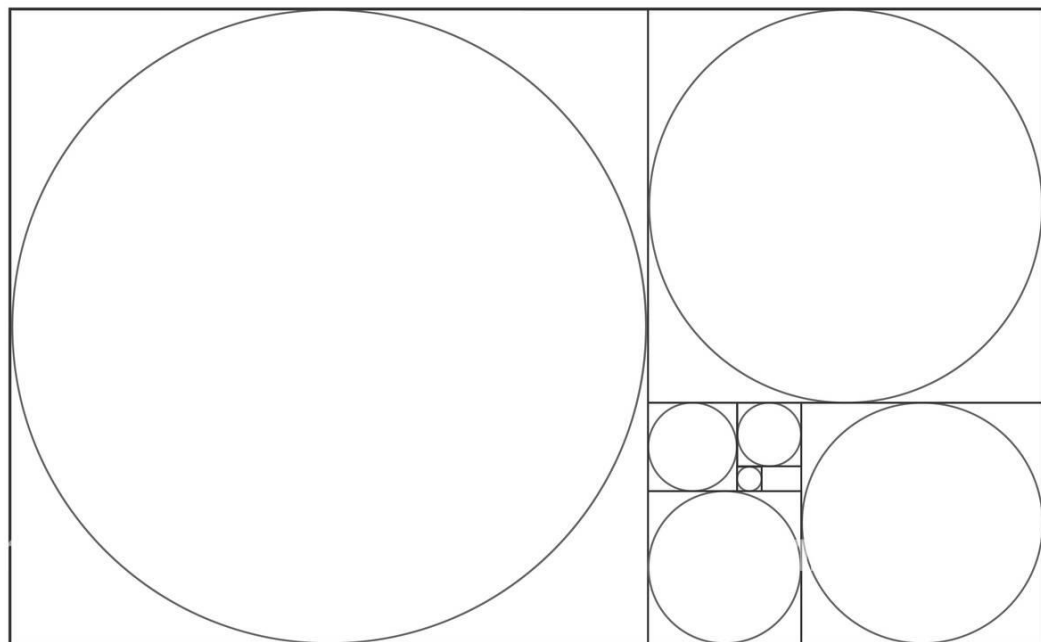


# Zlatna spirala

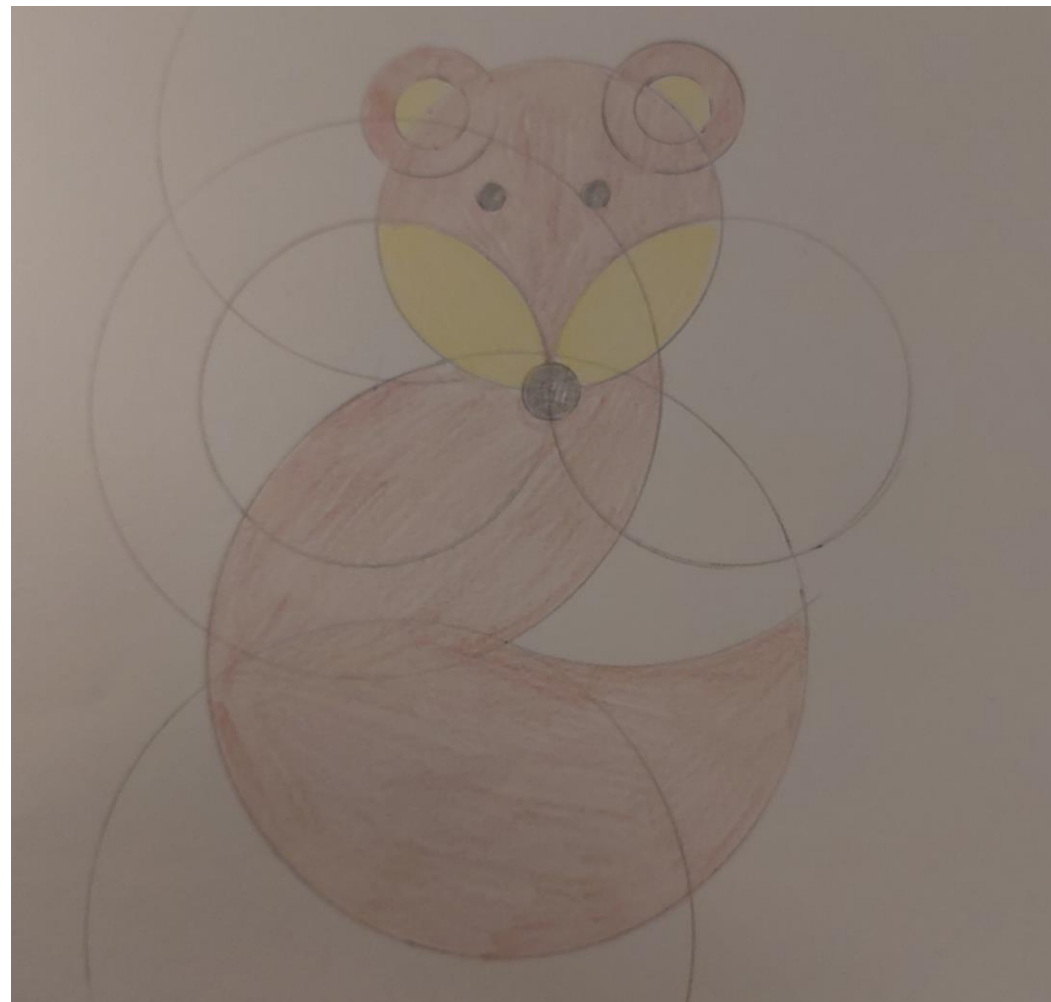
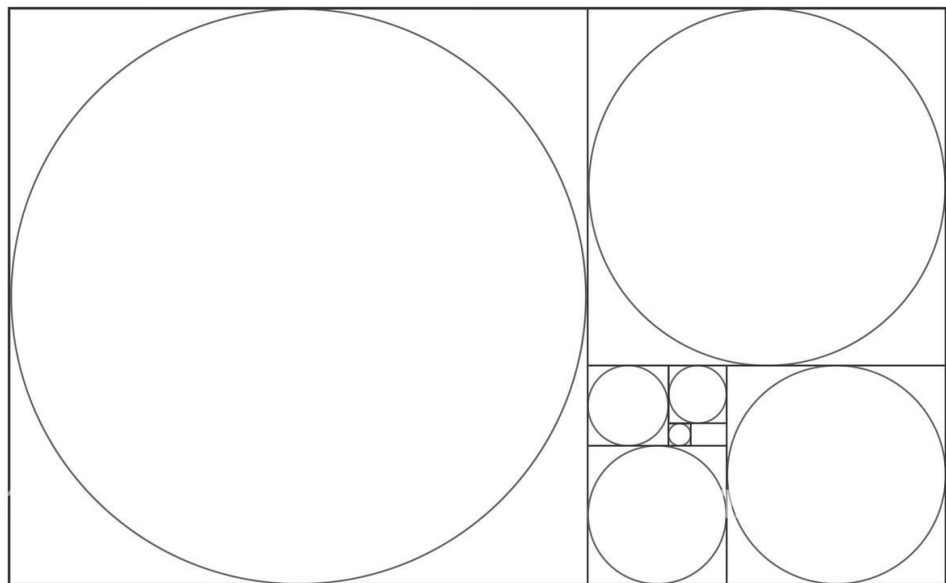
Nastaje nizanjem više zlatnih pravokutnika



# Zlatne kružnice



- Nacrtajte sliku / logo pomoću zlatnih kružnica



# Fibonaccijevi brojevi



Leonardo iz Pise (Fibonacci)  
(1175. - 1250.)

Pogledajte sljedeći niz brojeva: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89...

Omjeri susjednih članova Fibonaccijevog niza:

$$1/2 = 0.5$$

$$3/2 = 1.5$$

$$5/3 = 1.666$$

$$8/5 = 1.6$$

$$13/8 = 1.625$$

$$21/13 = 1.615384$$

$$34/21 = 1.619047$$

$$55/34 = 1.617647$$

$$89/55 = 1.618181$$

Nastavite li na isti način dijeliti, sve ste bliže broju

$$\phi = 1,6180339887498948482$$

# Fibonaccijevi brojevi u zlatnoj spirali

