

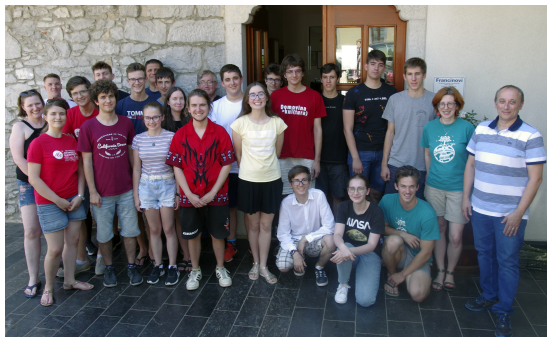
# Astronomsko tekmovanje treh dežel

Vid Kavčič

Presekov seminar

14. 9. 2022

# Nekaj kratkega o tekmovanju



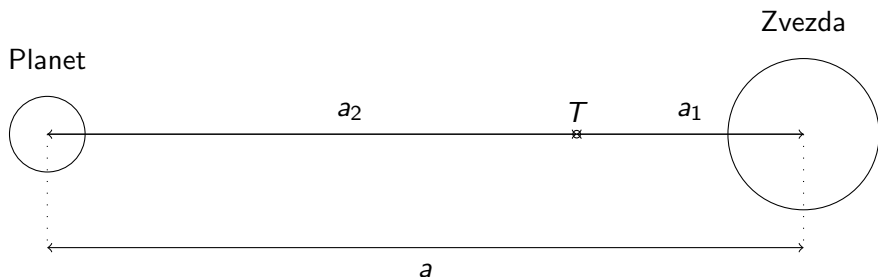
- 1.–3. julij 2022, **Avber**, Kras,
- **zlato**: Peter Andolšek, Vid Kavčič,
- **bron**: Alexander Gaydukov,
- **srebro**: Miha Brvar, Marija Judež,
- **pohvala**: Aleš Rus,
- vodji ekipe: **Dunja Fabjan** in **Andrej Guštin**.

# Naloga

Planet kroži okoli zvezde v krožni orbiti z inklinacijo  $90^\circ$ . Sistem je od nas oddaljen 1,3 pc. Planeta ne opazujemo direktno, marveč lahko opazimo periodične spremembe v legi zvezde. Kolikšna je masa planeta (v enotah  $M_\oplus$ ), če je amplituda zvezdinega gibanja  $0,01''$  s periodo 20 let? Masa zvezde je enaka Sončevi.

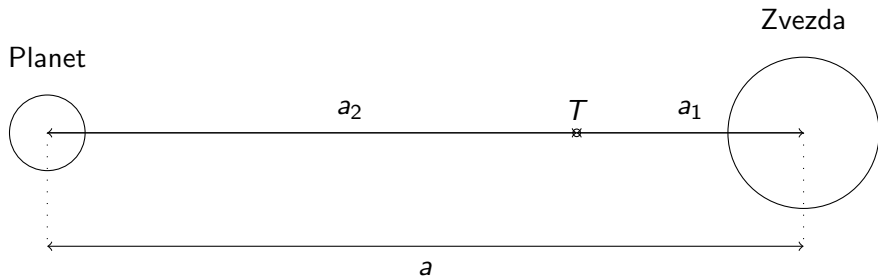
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# Skica in razlaga problema

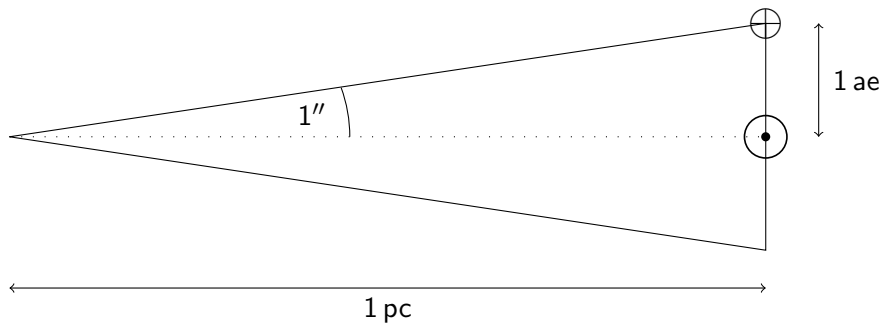
Podatki:  $d = 1,3 \text{ pc}$ ,  $\theta = 0,01''$ ,  $t_0 = 20 \text{ let}$ ,  $M_S = M_{\odot}$



$$a_1 + a_2 = a.$$

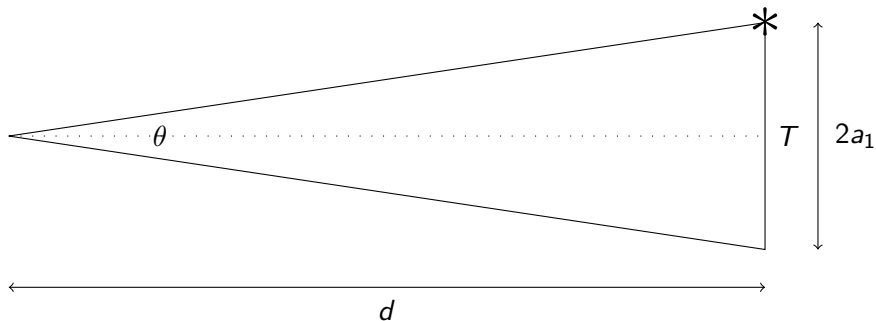
# Parsec

**PARSEC** – razdalja, na kateri bi videli astronomsko enoto pod kotom  $1''$



$$1 \text{ pc} = 3,26 \text{ sl} = 206\,265 \text{ ae} = 3,086 \cdot 10^{16} \text{ m}$$

# Določimo $a_1$



$$a_1 = \frac{1}{2}d\theta = 0,0065 \text{ ae} = 9,75 \cdot 10^8 \text{ m.}$$

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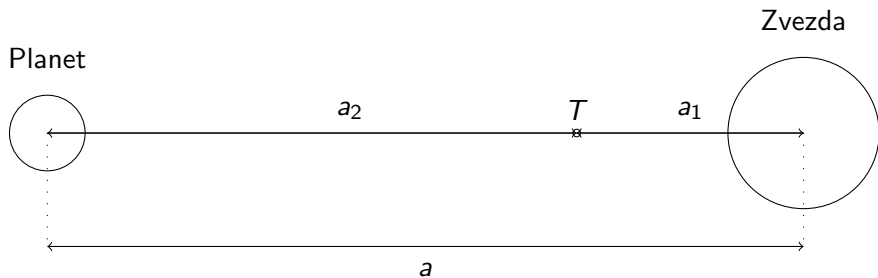
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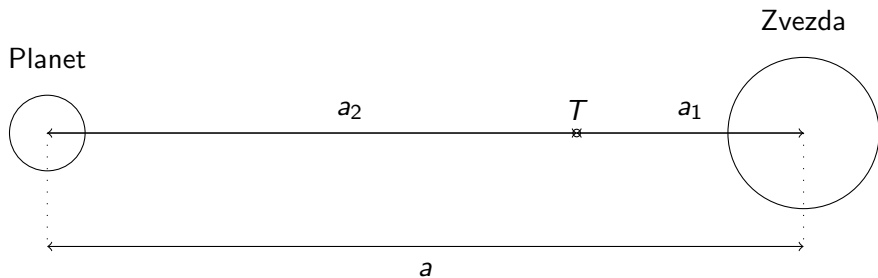
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# Kroženje zvezde okoli težišča

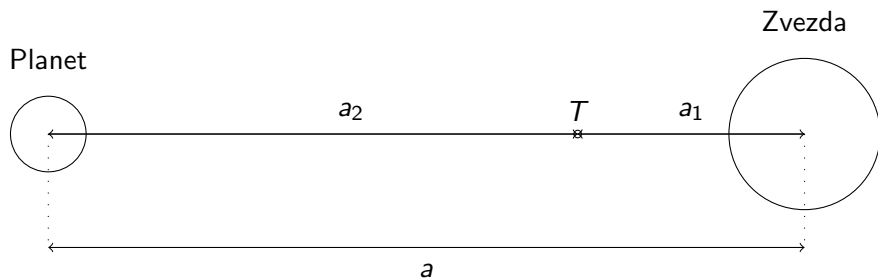


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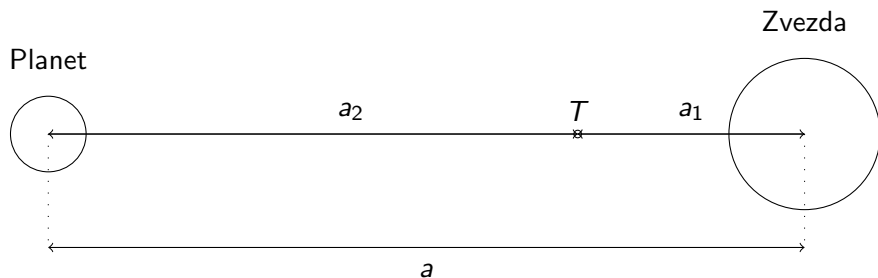
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# Kkšno VprašaJNe?