.

Notes on the homework 3. See the pdf file posted.

A

1. **Ako je data funcija** F(x)= 3x – Given a function F(x)= 3x) (use here the indefinite article. Do not miss i).
2. **Ako se uvedu oznake** Let us introduce the notation. It is not necessary to translate it in a word-by-word manner: if we
3. **Ako I samo ako** – if and only if (do not abbreviate to iff if the Serbian text does not explicitly state: AKKO

D.

Da bi se ovaj problem prevazisao – in order to overcome this problem

Dovoljno je – it suffices to (not: it is sufficient to)/

Dovesti u vezu – bring into connection (not: to bring into a connection, or into the connection with).

E

Epsilon funcija – the epsilon function. Do not miss the article! Not an epsilon function, but the epsilon function!

Elementarna funkcija – elementary, basic function

is not continuous at 2.

G

Globalna svojstva – global properties

Izolovana tacka skupa – the isolated points of a set (take care about the use of the indefinite article: It is ANY SET in the text I have submitted and posted on Enastava.).

K

Kao sto ce se videti – as we see
in the following examples**.**

Kvadratna funkcija – quadratic function (Not: quadric function!)

I

Iz definicije sledi – it follows from the definition, the definition implies

J

jednostavnosti radi (or radi jednostavnosti) - for simplicity' s sake,(or you can even write: for brevity's sake).

N

Navedene – mentioned (or above mentioned

Neprekidna sa desna strane – continuous FROM the right side

(take care: it is not: ON THE RIGHT SIDE, but: FROM THE RIGHT SIDE).

If you wish to omit a proposition, then you may use phrases such as: left-continuous or right-continuous.

Further examples:

Za funkcije se kaze da je neprekidna sa *desne strane* ako $\lim_{x\to a^+} f(x) = f(a)$

Translation:

A function is said to be continuous from the right at if $\lim_{x\to a^+} f(x) = f(a)$.

Example: Za funkcije se kaze da je neprekidna sa leve strane ako $\lim_{x\to a^-} f(x) = f(a)$

A function is said to be continuous from the left if $\lim_{x\to a^-} f(x) = f(a)$

$\lim_{x\to a^+} f(x) = f(a)$

Example. The function $f(x) = \sqrt{x}$ is defined for $x

so we canot talk about left-continuity of f(x) at 0. But since

$\lim_{x\to 0+} \sqrt{x} = 0$,

we conclude that f(x) is right-continuous at 0.

$$f(x) = \begin{cases} x^3 + 2 & \text{if } x < 2 \\ 5 & \text{if } x = 2 \\ x^2 + 6 & \text{if } x > 2 \end{cases}$$ **The details are left to the reader to see**

$\lim_{x \to 2-} f(x) = \lim_{x \to 2-} x^3 + 2 = 10,$ **and**

So we have

1. $\lim_{x \to 2+} f(x) = \lim_{x \to 2+} x^2 + 6 = 10.\lim_{x \to 2} f(x) = 10.$ **Since f(2) = 5, then f(x)**
2.)

1. **<u>Neprekidna sa leve strane</u>** - continuous From the the left side

- Enlarge $\lim_{x \to 0} \frac{1}{x}$

(two-sided limit does not exist)

limit <u>from the left</u>

lim_(x->0^-) 1/x = -∞

A function f is left continuous at point a in its domain when the limit of f(x) as x approaches a from the left equals f(a).

Further examples:

Neprekidnost se definise **U** tacki

1. continuity is defined **AT** the point" (Not **ON** the point: a common mistake!).
2. Compare this phrase f(x) is defined **at** <u>the point</u> x = a

However, we translate: Neprekidna na R (na skupu realnih brojeva) – as continuous <u>over</u> R (not continuous AT or ON R).

Neprekidna (funkcija) na intervalu

Funkcija F(x) sin (x) je neprekidna na intervalu (- ∞ ∞**)**

Observe a difference between the use of the 'at' and 'on'

5) **The function sin(x) is continuous on the interval** (- ∞ ∞**)**

Funkcija F (x) je neprekidna na intervalu (a, b) ako je nepekidna U svakoj tacki.

The Function F(x) is continuous **on** the interval (a, b) if it is continuous **at** every point.

The root of x (x2)is continuous **on** th**e** interval (- ∞ ∞**)**

O

Odakle sledi da – whence it follows that (not whence follows: without 'it'). We have discussed about the use of 'hence' to translate the phrase: odavde, odavde sledi. Apply the same rule to phrase**:** odakle sledi)

Compare:

Onda je F neprekidna, a odatle sledi ogranicena na D.

Then F is continuous, hence bounded

on D.

P

Po definiciji – by definition (not according to the definition)

Prirastaj – increment

T

Tezi ka nuli – approaches zero (not: tends to zero). Also, take care bout the use of the present tense. Is approaching zero would be a mistake!)

O

Osim toga: Moreover (Not: besides. Do not google translate)

Otvoreni skup – open set

Sadrzi – contain. Domain contains points which

Oznake- notation

P.

Prekidna funkcija – discontinuous function

Example: sign(x-1) je prekidna funkcija.

Translation: sign(x-1) is a discontinuous function

Example 2:

Neki od primera za prekidnu funkciju su: F(x) = 1/(x - 2) f(x) = tan x. $f(x) = x^2 - 1$, for $x < 1$ and $f(x) = x^3 - 5$ for $1 < x < 2$

Some of the examples of a discontinuous function are: f(x) = 1/(x - 2) f(x) = tan x. $f(x) = x^2 - 1$, for $x < 1$ and $f(x) = x^3 - 5$ for $1 < x < 2$

pri cemu is most suitably translated with the phrase: whereas

Posmatra: example: sada se posmatra – Now one considers - the phrase starting with ONE can be helpful in translating constructions containing a reflexive pronoun.

Polinom – polynomial (I will not accept: polynom). 1. Polynomials are continuous everywhere

Primedbe – remarks

Primedba ima za posledicu

The consequence of this remark is that

T

Tacka prekida – discontinuity

Tacke nagomilavanja - Points of accumulation

Teorema – theorem

U

Uociti –note, observe remark:

I recomment using the phrase: Note that

.

34. **U ovom predavanju proucavaju se lokalna svojstva neprekidnih funkcija** - this lecture studies local properties of continuous functions

35 Uvodi se pojam

This phrase is easily dealt with by using a passive construction:

Instead of saying: In this chapter, the concept of continuity is introduced,

This chapter introduces the concept of continuity

Compare: U ovom predavanju uvodi se pojam neprekidnosti, This lecture introduces the concept of congtinuity.

More broadly, compare: U 20. veku, dogodilo se neko x.

The 20 th century witnessed … .

zavisi od: depend on (better than: is dependent **on)**

39. Neka je $V(f(x))$ proizvoljna okolina ta_cke $f(x)$.

Let V(x) be an arbitrary neighboirhood of the point F(x)

42. preko grani_cnih vrednosti preko nizova, in terms of limits

we translate: the conjuction ‘I’ as ‘so’”:
I vazi: so it holds that

42. otklonjivi prekid – removable discontinuity

44 Topoloska – topological: topoloska definicija, topological definition (not topologic definition

$\boldsymbol{f(x) = 0}$

47. U tom slucaju - In this case (Not: IN THAT CASE)

48. zavisna promenljiva *one dependent* variable

nezavisna promenljiva – dependent variable

cija.