LINEARNA FUNKCIJA

$f(x)=k\cdot x+m$

k... koeficient $\rightleftarrows$ $k>0$ naraščajoča; $k=0$ vodoravna; $k<0$ padajoča

m... začetna vrednost $f(0)=m$ ($x=0$)

ničla: $f(x)=0$

Ⓟ: $f(x)=3x-6$

ZAČ. VR: $f(0)=-6$

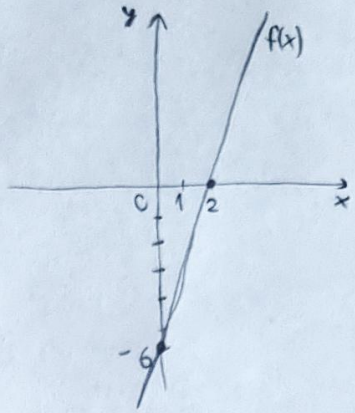
NIČLA: $f(x)=0$

$3x-6=0$

$3x=6$

$x=2$

$k=3>0 \rightarrow$ naraščа



KVADRATNA FUNKCIJA

$f(x)=ax^2+bx+c$ SPLOŠNA OBLIKA

$f(x)=a(x-x_1)(x-x_2)$ NIČELNA OBLIKA x_1, x_2 ničli

$f(x)=a(x-p)^2+q$ TEMENSKA OBLIKA $T(p|q)$ teme

a... vodilni koeficient

c... prosti člen

ničle: $f(x)=0$

- IZPOSTAVLJANJE / RAZSTAVLJANJE $x^2-4=(x-2)(x+2)$
- VIETOVO PRAVILO
- DISKRIMINANTA

$D=b^2-4ac$

$x_{1,2}=\frac{-b\pm\sqrt{D}}{2a}$

$x^2-1x-6=0$

$(x-3)(x+2)=0$

$-6=(-3)\cdot 2$ PRODUKT

$-1=-3+2$ VSOTA

Ⓟ: $f(x)=-6x^2-19x+11$

ZAČ. VR: $f(0)=11$

NIČLI: $f(x)=0$

$-6x^2-19x+11=0$

$D=b^2-4ac=(-19)^2-4\cdot(-6)\cdot 11=625$

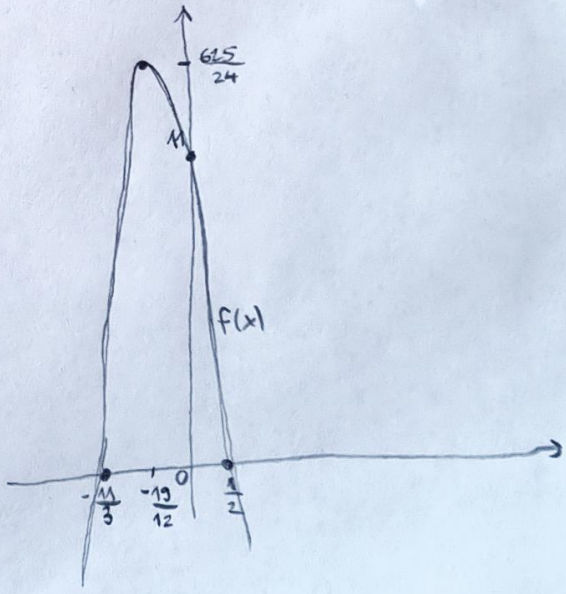
$x_{1,2}=\frac{-b\pm\sqrt{D}}{2a}=\frac{-(-19)\pm\sqrt{625}}{2\cdot(-6)}=$

$=\frac{19\mp 25}{-12}$

$x_1=-\frac{11}{3}$ $x_2=\frac{1}{2}$

TEME: $p=\frac{-b}{2a}=-\frac{(-19)}{2\cdot(-6)}=-\frac{19}{12}$

$q=\frac{-D}{4a}=\frac{-625}{4\cdot(-6)}=\frac{625}{24}$



	$a>0$	$a<0$
$D>0$		
$D=0$		
$D<0$		

$T(p|q)$... teme $p=-\frac{b}{2a}$ $q=\frac{-D}{4a}$

POTENCE

$x^m \cdot x^m = x^{m+m}$ $\qquad x^0 = 1$

$\frac{x^m}{x^m} = x^{m-m}$ $\qquad x^1 = x$

ODVODI

$(f(x) + g(x))' = f'(x) + g'(x)$

$(f(x) - g(x))' = f'(x) - g'(x)$

$(f(x) \cdot g(x))' = f'(x) \cdot g(x) + f(x) \cdot g'(x)$

$\left(\frac{f(x)}{g(x)}\right)' = \frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{(g(x))^2}$

$(x^m)' = m \cdot x^{m-1}$

$(c \cdot f(x))' = c \cdot f'(x)$

INTEGRALI - nedoločeni

$\int (f(x) + g(x))\,dx = \int f(x)\,dx + \int g(x)\,dx$

$\int (f(x) - g(x))\,dx = \int f(x)\,dx - \int g(x)\,dx$

$\int c \cdot f(x)\,dx = c \cdot \int f(x)\,dx$

$\int x^m\,dx = \frac{x^{m+1}}{m+1} + C$ (KONSTANTA)

$\int dx = \int x^0\,dx = x + C$

$\int x^1\,dx = \frac{x^2}{2} + C$

INTEGRALI - določeni

$\int_a^b g(x)\,dx = G(x)\Big|_a^b = G(b) - G(a)$

G ... primitivna funkcija

$\int_0^1 x^m\,dx = \frac{x^{m+1}}{m+1}\Big|_{x=0}^{x=1} = \underbrace{\frac{1^{m+1}}{m+1}}_{\text{VSTAVI ZGORNJO MEJO}} - \underbrace{\frac{0^{m+1}}{m+1}}_{\text{VSTAVI SPODNJO MEJO}} = \frac{1}{m+1}$

($1^{m+1} = 1$, $0^{m+1} = 0$)