Mathematical Analysis – vocabulary list

analysis
- real
- complex

asymptote
- Horizontal
- Vertical
- Oblique = inclined

Calculus
- Fundamental Theorem of Calculus
- Differential c.
- Integral c.

codomain

continuity (X discontinuity → point of discontinuity; discontinuous at a point)
- at a point
- from the left
- from the right
- on an interval
- → continuous (*adj.*)

Coordinate system → coordinates
- Cartesian
- Polar
- x-coordinate
- y-coordinate

Derivative (*n.*)
- of a function
- first; second
- of higher order
- of order n
- partial (– mixed partial)
- one-sided
- left d. = left-hand
- right d. = right-hand derivative

differentiate (*v.*) → differentiation (*n.*)
- → differential (*adj.*)
- → differentiable (*adj.*) → differentiability (*n.*)

Domain

Function
- of more variables (= multivariate f.)
- of one variable (= univariate f.)
- inverse
- one-to-one (*in Czech*: ‘prostá’)
- real = real-valued
- complex = complex-valued

- course of a f.

properties

- concavity of a f.
  - concave up (also sometimes convex)
  - concave down (also sometimes concave)
- odd
- even
- periodical
- (strictly) monotonic → monotonicity (*n.*) (→ interval of monotony)
- (strictly) decreasing
- (strictly) increasing
- Non-decreasing
- Non-increasing
- Differentiable
- unbounded function
- Bounded from above = f. has an upper bound
- Bounded from below = f. has a lower bound
  - → boundedness (*n.*) of a function

extremum (→ maximum / minimum) (plural: extrema, maxima, minima)

- Global
- Local

graph

image (of *x* under *f*)

integrate (*v.*)

- → integration (*n.*)
  - by parts
  - constant of integration
  - with respect to a variable (e.g. with respect to *x*)
- → integral (*n.*)
  - Definite
    - upper limit of the i.
    - lower limit of the i.
    - "the integral from *a* to *b* of *f* of *x* with respect to *x* (= d x)"
  - indefinite i. (= anti-derivative (*n.*) = primitive (*n.*))
- → integral (*adj.*)
- Integrable (*adj.*)
  - function

inflection (point) = point of inflection (= inflexion *esp. in Br.E.)*

integrand

intercept

- x-intercept
- y-intercept

limit

- at a point
- proper

- improper = infinite
- left-hand = l. on the left
- right-hand = l. on the right
- “the limit of *f* of *x* as *x* tends to (= approaches = goes to) infinity”

mapping
- one-to-one
- identity
- bijection
    - injection
    - surjection

neighbourhood of a point
range of values = range of a function
stationary point = critical point
- inflection point
- maximum
- minimum