Section 7: functions of two variables z= f(x,y)

Definitions

- Functions of two variables
  - Graphing
- Cartesian equation of a plane and normal vector to a plane
- Level curves
- Limits...
  - ...and continuity
- Derivatives
  - First order partial derivatives
    - Geometrically
  - Second order partial derivatives
  - Tangent planes and differentiability
  - Directional derivatives...
    - ... and the Gradient
- Local máxima, minima and saddle points
  - Stationary points
- Integration
  - Partial integration
  - Double integrals
    - Over rectangular domains

Techniques/rules/tricks

- Sketching
- Linear approximations
- Chain rule
- Properties of gradient and directional derivatives
- Second derivative test
- Fubini's theorem