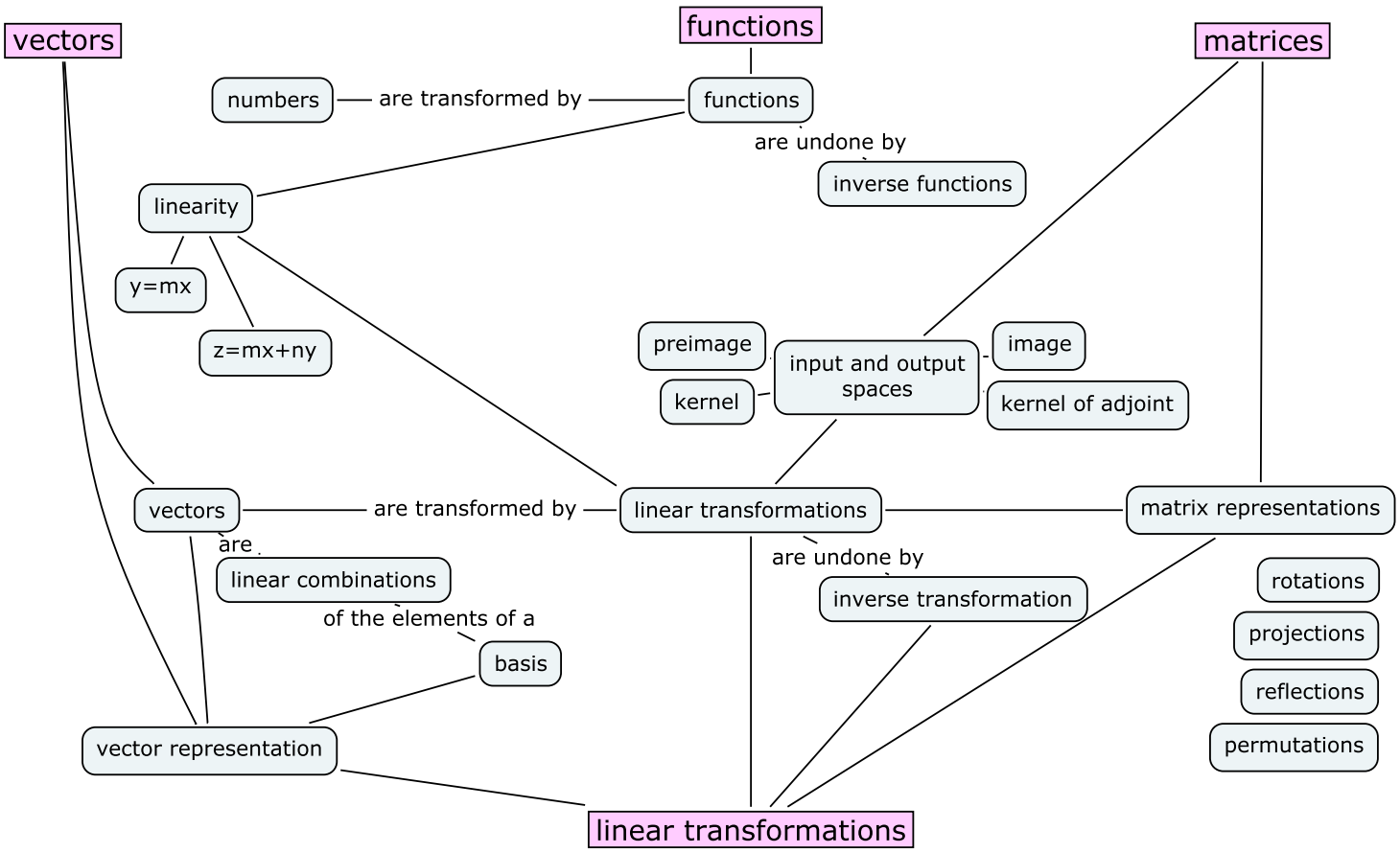
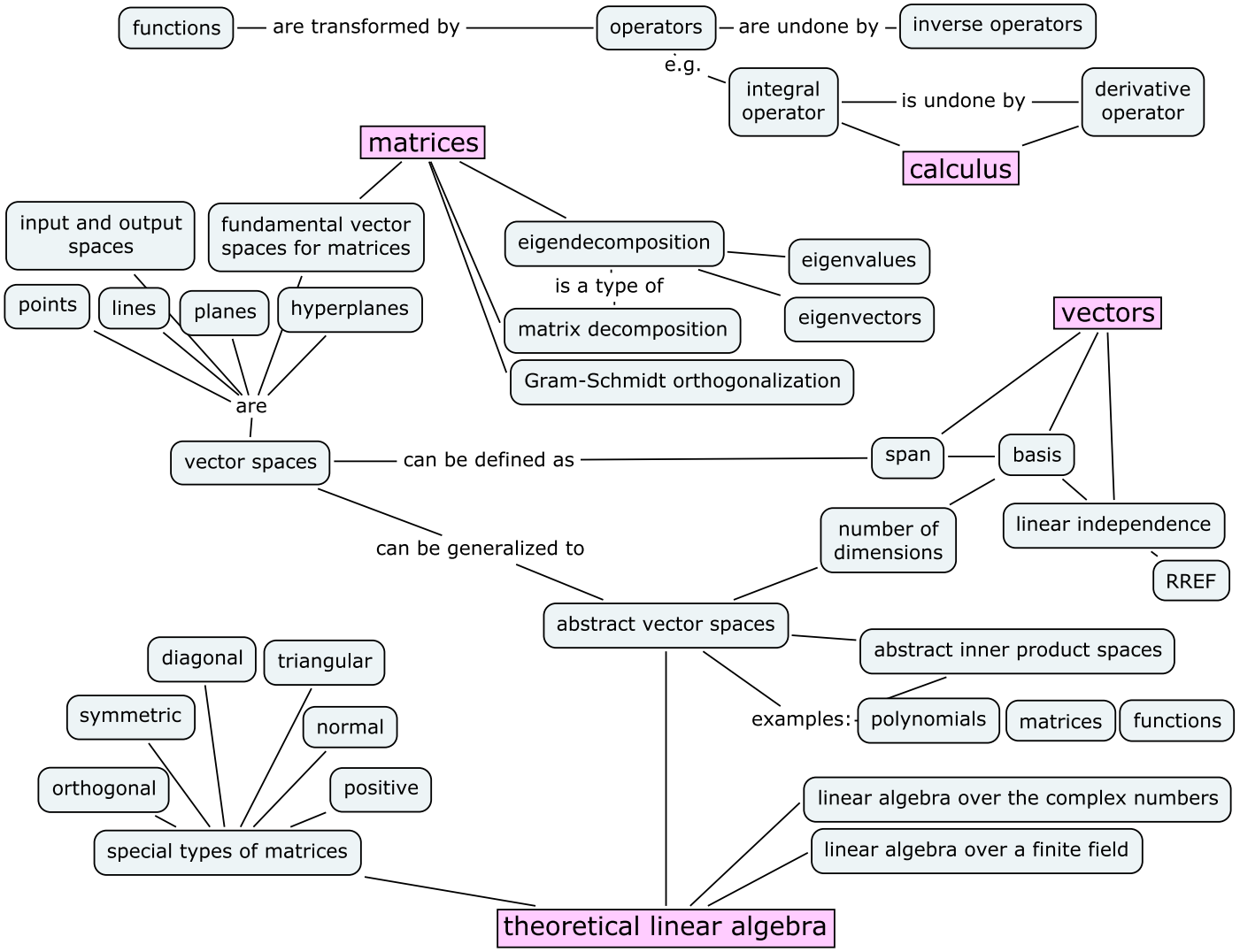

vectors
functions
matrices
numbers
are transformed by
functions
are undone by
inverse functions
linearity
y=mx
z=mx+ny
preimage
input and output spaces
image
kernel
kernel of adjoint
vectors
are transformed by
linear transformations
matrix representations
are
linear combinations
of the elements of a
basis
are undone by
inverse transformation
rotations
projections
reflections
permutations
vector representation
linear transformations


functions
are transformed by
operators
are undone by
inverse operators
e.g.
integral operator
is undone by
derivative operator
calculus
matrices
input and output spaces
fundamental vector spaces for matrices
eigendecomposition
eigenvalues
is a type of
eigenvectors
points
lines
planes
hyperplanes
matrix decomposition
Gram-Schmidt orthogonalization
vectors
are
vector spaces
can be defined as
span
basis
number of dimensions
linear independence
RREF
can be generalized to
abstract vector spaces
abstract inner product spaces
diagonal
triangular
symmetric
normal
examples:
polynomials
matrices
functions
orthogonal
positive
linear algebra over the complex numbers
special types of matrices
linear algebra over a finite field
theoretical linear algebra