Numbers

Arithmetic <u>+ - * / quot rem mod inc dec max min +' -' *' inc' dec'</u>

Compare /

== < > <= >= compare zero? pos? neg? even? odd? number?

Test / integer? rand rand-int Random

Collections

Generic ops <u>count</u> <u>empty</u> <u>not-empty</u> <u>into</u> <u>conj</u>

Content distinct? empty? every? not-every? some not-any?

tests

coll? list? vector? set? map? seq? Type tests

list list* first nth peek .indexOf .lastIndexOf cons conj Lists

rest pop

vector vec vector-of mapy filtery get peek .indexOf

.lastIndexOf assoc assoc-in pop subvec replace conj Vectors

update update-in

set hash-set contains? conj disj (clojure.set/) union Sets

difference intersection select subset? superset?

hash-map frequencies group-by get-in contains? find keys

<u>vals assoc assoc-in dissoc merge merge-with select-keys</u>

Maps update update-in (clojure.set/) index rename-keys map-

invert

seq vals keys rseq subseq rsubseq sequence lazy-seq Lazy Seqs

repeatedly iterate repeat range keep keep-indexed

Seg in, Seg out

Get shorter distinct filter remove take-nth for dedupe random-sample

<u>cons</u> <u>conj</u> <u>concat</u> <u>lazy-cat</u> <u>mapcat</u> <u>cycle</u> <u>interleave</u>

Get longer <u>interpose</u>

rest nthrest next fnext nnext drop drop-while take-last

Tail-items for

Head-items take take-while butlast drop-last for

conj concat distinct flatten group-by partition

partition-all partition-by split-at split-with filter 'Change'

remove replace shuffle

<u>reverse</u> <u>sort</u> <u>sort-by</u> <u>compare</u> Rearrange

Process

items

map pmap map-indexed mapcat for replace

Using a Seq

first second last rest next ffirst nfirst fnext nnext Extract item

nth nthnext <u>rand-nth</u> <u>when-first</u> <u>max-key</u> <u>min-key</u>

Construct coll zipmap into reduce reductions set vec mapy filtery

some filter Search

Force

doseq dorun doall run!

evaluation

Strings

```
Use count get subs (clojure.string/) join escape split split-
lines replace replace-first reverse index-of last-index-of
Trim (clojure.string/) trim trim-newline triml trimr
string? (clojure.string/) blank? starts-with? ends-with?
includes?
```

Misc

```
Compare <u>= identical? not= not compare</u>
Test true? false? instance? nil? some?
```

Functions

```
Create fn defn identity constantly comp complement partial juxt fnil

Call apply -> ->> trampoline as->

Test fn? ifn?
```

Types etc.

```
Protocols (\frac{\text{defprotocol}}{\text{extend-type}} \text{ Slicey (slice [at])})
\frac{\text{extend-type}}{\text{extend-protocol}} \text{ Slicey (slice [at] ...)})
\frac{\text{extend extend-protocol}}{\text{extenders}}
\frac{\text{(defrecord}}{\text{(ch (Pair. 1 2))}} \rightarrow 1
\text{Pair. ->Pair map->Pair}
\frac{\text{(deftype Pair [h t])}}{\text{(.h (Pair. 1 2))}} \rightarrow 1
\text{Pair. ->Pair}
\frac{\text{(defmulti my-mm dispatch-fn)}}{\text{(defmethod my-mm :dispatch-value [args] ...)}}
```

Macros

```
Branch and or when when-not when-let when-first if-not if-let cond condp case when-some if-some

Loop for doseq dotimes while

Arrange .. doto -> ->> as-> cond-> cond->> some->>

Lazy lazy-cat lazy-seq delay
```

Concurrency

Atoms <u>atom swap!</u> <u>reset!</u>

Refs and ref deref dosync ensure ref-set alter commute

Transactions

Agents

agent send send-off await await-for

Watchers <u>add-watch</u> <u>remove-watch</u>

Special Forms

<u>def if do let letfn quote var fn loop recur throw try</u>