

CreateGraph@ n gives a graph with minimal irreducible knot diagrams with n crossings as vertices and edges connecting each pair of knot diagrams that are equivalent under one 2-pass, flype, or third Reidemeister move.

CreateGraph@"all" gives a graph with minimal irreducible knot diagrams with up to 10 crossings as vertices and edges connecting each pair of knot diagrams that are equivalent under one 2-pass, flype, or third Reidemeister move.

```
CreateGraph@n_ := CreateGraph@n = If[n == 0, {},
  If[n == "all", Join @@ Array[CreateGraph, 11, 0],
    Block[
      {r, y = Join[Reverse@KnotSort@#[] ;; 2], {#[[3]]}] &
        /@ (Join[#, {"Flype"}] &
          /@ Union @@
            (Flype@KnotAssociation[n] @# & /@
              CandidateKnots@n) ∪
          Flatten[
            Table[{{k, #, "Reidemeister 3"} & /@
              ReidemeisterThree@k,
                {k, #, "2-Pass"} & /@ TwoPass@k},
              {k, ValidKnots@n}], 2)) ∪ {}},
      r =
        Join @@ Select[ConnectedComponents@
          Graph[#[[1]] ↔ #[[2]] & /@ y],
          Or @@ PassReducible /@ # &];
      Sort[Select[y, ¬ MemberQ[r, #[[1]]] &],
        GraphSort]]];
```