

Jeremy — PS 18 — 2025-04-15

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Due to getting a little behind in the final two weeks of the semester, I only checked for completeness on PS 18-21.

~Brian

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In[*]:= Cases[Table[IntegerDigits[n^2], {n, 100}], {___, x_, x_, ___}]

In[*]:= StringJoin /@ Cases[Table[Characters[RomanNumeral[n]], {n, 100}],
    {___, "L", ___, "I", ___, "X", ___}]

In[*]:= Clear[f]
    f[l_List] := l == Reverse[l]
    f[{a, b, c, b, a}]

In[*]:= Cases[Partition[TextWords[WikipediaData["alliteration"]], 2, 1],
    {a_, b_} /; StringTake[a, 1] == StringTake[b, 1]]

In[*]:= Grid[NestList[({# /. {x___, b_, a_, y___} /; b > a → {x, a, b, y}}) &, {4, 5, 1, 3, 2}, 10]]

In[*]:= ArrayPlot[Transpose[FixedPointList[
    ({# /. {x___, b_, a_, y___} /; b > a → {x, a, b, y}}) &, RandomSample[Range[50]]]]]]

In[*]:= FixedPointList[({# + 2 / #} / 2 &, 1.0)]

In[*]:= FixedPointList[({# /. {a_, b_} /; b ≠ 0 → {b, Mod[a, b]}}) &, {12 345, 54 321}]

In[*]:= FixedPointList[
    # /. {s[x_][y_][z_] → x[z][y[z]], k[x_][y_] → x} &, s[s][k][s[s[s]]][s][s]]

In[*]:= Last[FixedPointList[({# /. {x___, y_} /; y == 0 → {x, Nothing} &, IntegerDigits[100!]]]]

In[*]:= Length /@ NestList[
    # /. {{x_, y_, z___} /; x == 1 → {z, 0, 1}, {x_, y_, z___} /; x == 0 → {z, 1, 0, 0}} &,
    {1, 0}, 200]

In[*]:= ListLinePlot[Length /@
    NestList[({# /. {{x_, y_, z___} /; x == 0 → {z, 2, 1}, {x_, y_, z___} /; x == 1 → {z, 0},
        {x_, y_, z___} /; x == 2 → {z, 0, 2, 1, 2}} &, {0, 0}, 200]]

In[*]:= StringReplace["1 2 3 4", " " → "---"]

In[*]:= Sort[StringCases[WikipediaData["computers"],
    DigitCharacter ~~ DigitCharacter ~~ DigitCharacter ~~ DigitCharacter]]


In[*]:= StringCases[WikipediaData["computers"], "===" ~~ Shortest[x_] ~~ "===" → x]
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In[*]:= Grid[Table[StringTemplate["`1`+`2`=`3`"][i, j, i + j], {i, 9}, {j, 9}]]

In[*]:= Select[Table[IntegerName[n], {n, 50}],
  StringMatchQ[#, ___ ~~ "i" ~~ ___ ~~ "e" ~~ ___] &]

In[*]:= StringReplace[First[TextSentences[WikipediaData["computers"]]],
  x : (Whitespace ~~ LetterCharacter ~~ LetterCharacter ~~ Whitespace) -> ToUpperCase[x]]

In[*]:= BarChart[Counts[StringTake[
  TextString /@ EntityList[

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