Looks good but see comment below and on p. 5. 10/10.

Walker — PS 10 — 2025-02-25

EIWL3 Sections 26, 27, and 28

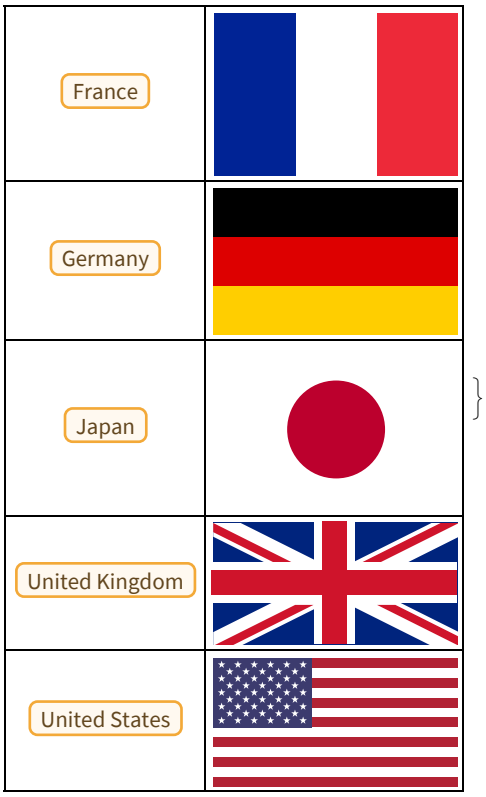
Chapter 26

```
In[1]:= Power[#, 2] & /@ Range[20]
Out[1]= {1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400}

In[2]:= Blend[{#, Red}] & /@ {Yellow, Green, Blue}
Out[2]= {■, ■, ■}

In[3]:= Framed[Column[#]] & /@ Transpose[{Alphabet[], ToUpperCase[Alphabet[]]}]
Out[3]= {{a, A}, {b, B}, {c, C}, {d, D}, {e, E}, {f, F}, {g, G}, {h, H}, {i, I}, {j, J}, {k, K}, {l, L},
         {m, M}, {n, N}, {o, O}, {p, P}, {q, Q}, {r, R}, {s, S}, {t, T}, {u, U}, {v, V}, {w, W}, {x, X}, {y, Y}, {z, Z}}

In[4]:= Framed[Style[#, RandomColor[]], Background → RandomColor[]] & /@
         Characters[Alphabet[]]
Out[4]= {{a}, {b}, {c}, {d}, {e}, {f}, {g}, {h}, {i}, {j}, {k}, {l}, {m},
         {n}, {o}, {p}, {q}, {r}, {s}, {t}, {u}, {v}, {w}, {x}, {y}, {z}}
```

Should rewrite to have letters not lists containing one letter.

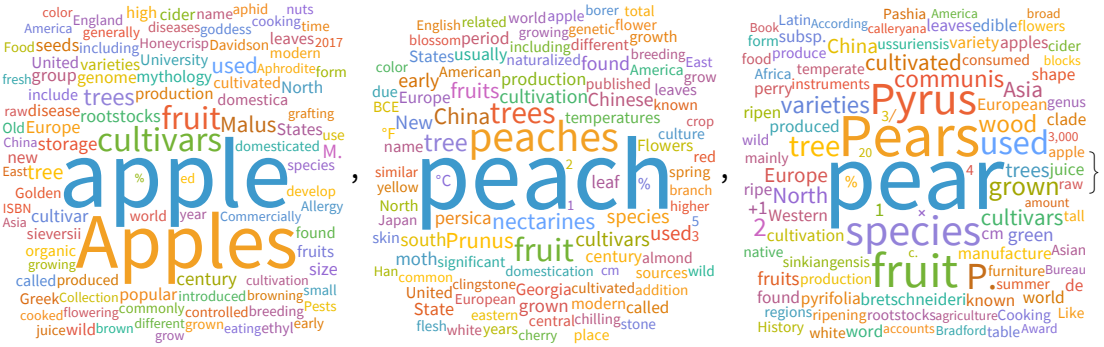
In[5]:=
```
Grid[#, Frame → All] & /@ {EntityValue[ Group of 5 COUNTRIES , {"Entity", "Flag"}]}
```

Out[5]=



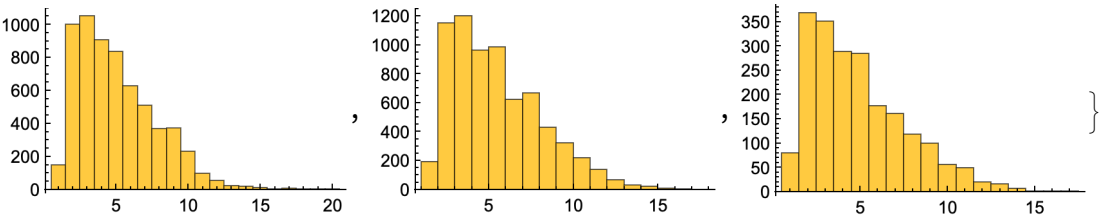
In[6]:=
```
WordCloud[WikipediaData[#]] & /@ {"apple", "peach", "pear"}
```

Out[6]=



In[7]:=
```
Histogram[StringLength[TextWords[WikipediaData[#]]]] & /@ {"apple", "peach", "pear"}
```

Out[7]=



```
GeoListPlot[#, GeoRange → Central America COUNTRIES] & /@
 EntityList[Central America COUNTRIES]
```

Out[8]=

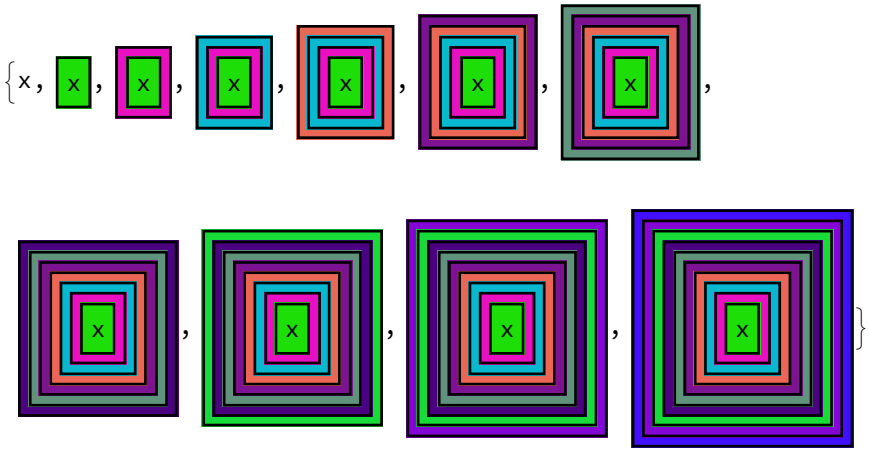
Chapter 27

In[9]:=
```
NestList[Blur, Rasterize[Style[X, 30]], 10]
```

Out[9]=

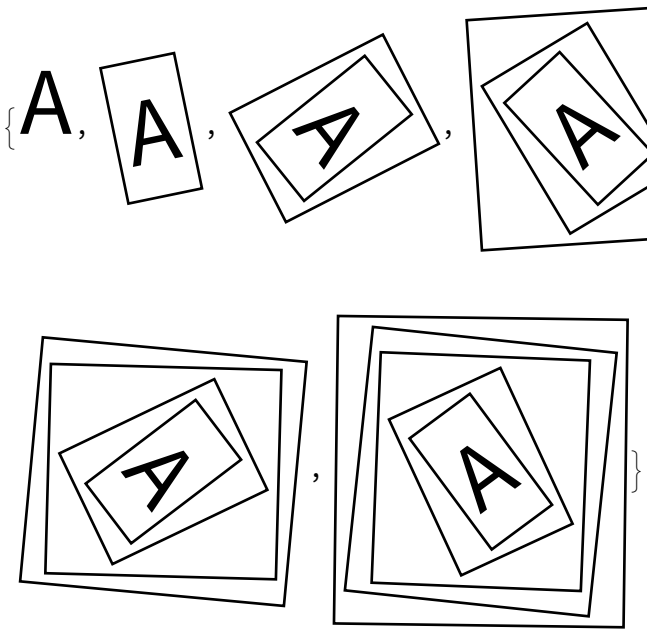
In[10]:=
```
NestList[Framed[#, Background → RandomColor[]] &, x, 10]
```

Out[10]=



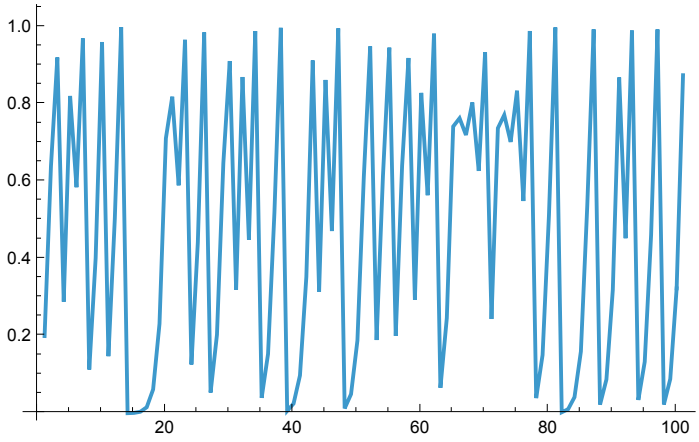
In[11]:=
```
NestList[Rotate[Framed[#], RandomInteger[360]] &, Style[A, 50], 5]
```

Out[11]=



In[12]:=
```
ListLinePlot[NestList[4 # (1 - #) &, 0.2, 100]]
```

Out[12]=



In[13]:=
```
N[Nest[1 + 1 / # &, 1, 30]]
```

Out[13]=

```
1.61803
```

In[14]:=
```
NestList[3 # &, 1, 10]
```

Out[14]=

```
{1, 3, 9, 27, 81, 243, 729, 2187, 6561, 19683, 59049}
```

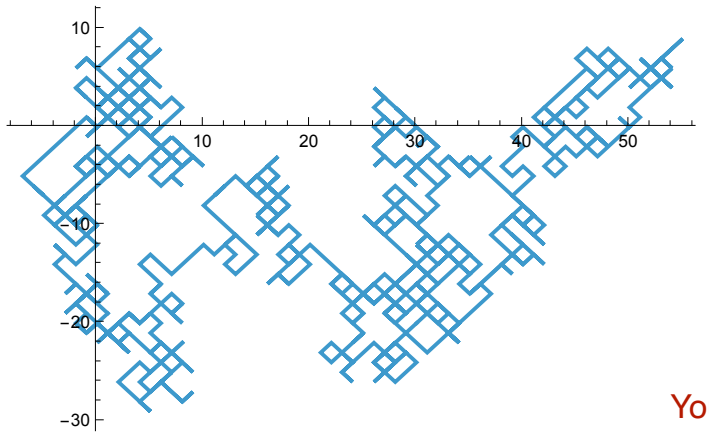
In[15]:=
```
N /@ Subtract[#, Sqrt[2]] & /@ NestList[(# + 2 / #) / 2 &, 1, 5]
```

Out[15]=

$$\{-0.414214,\ 0.0857864,\ 0.0024531,\ 2.1239\times10^{-6},\ 1.59472\times10^{-12},\ 0.\}$$

In[16]:=
```
ListLinePlot[NestList[
  {#[[1]] + RandomChoice[{-1, 1}], #[[2]] + RandomChoice[{-1, 1}]} &, {0, 0}, 1000]]
```

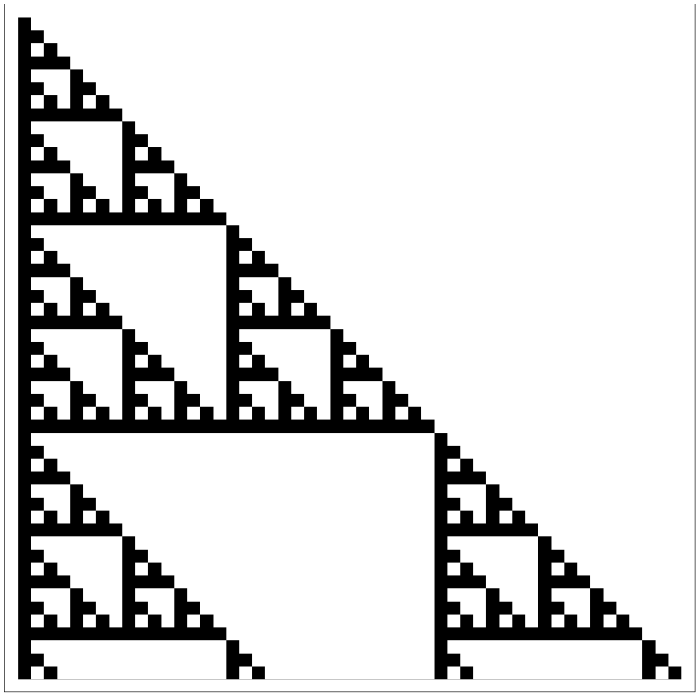
Out[16]=



You are only getting diagonal moves because you haven't allowed 0 as a choice. E.g., try RandomChoice[{-1, 0, 1}].

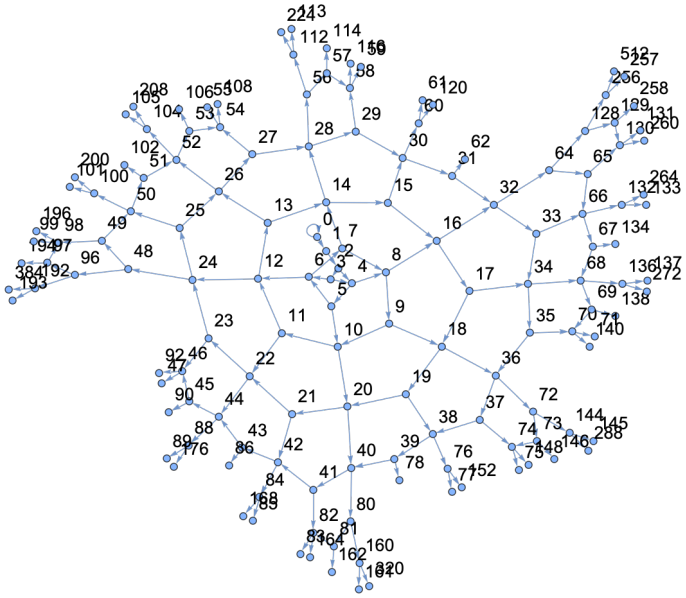
In[17]:=
```
ArrayPlot[Mod[#, 2] & /@ NestList[Join[{0}, #] + Join[#, {0}] &, {1}, 50]]
```

Out[17]=



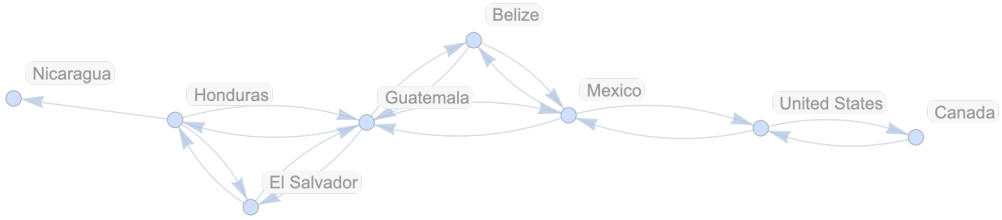
In[18]:=
```
NestGraph[{# + 1, 2 #} &, 0, 10, VertexLabels → All]
```

Out[18]=



In[19]:=
```
NestGraph[#["BorderingCountries"] &, United States COUNTRY, 4, VertexLabels → All]
```

Out[19]=



Chapter 28

In[20]:=
```
123^321 > 456^123
```

Out[20]=
```
True
```

In[21]:=
```
Select[Range[100], Total[IntegerDigits[#]] < 5 &]
```

Out[21]=
```
{1, 2, 3, 4, 10, 11, 12, 13, 20, 21, 22, 30, 31, 40, 100}
```

In[22]:=
```
If[PrimeQ[#], Style[#, Red], #] & /@ Range[20]
```

Out[22]=
```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

In[23]:=
```
Select[WordList[], Last[Characters[#]] == "p" && First[Characters[#]] == "p" &]
```

Out[23]=
```
{pap, paperclip, parsnip, partisanship, partnership, pawnshop, peep, penmanship,
 pep, pickup, pileup, pip, plop, plump, polyp, pomp, pop, premiership,
 prep, primp, professorship, prop, proprietorship, pulp, pump, pup}
```

In[24]:=
```
Select[Prime[Range[100]], Last[IntegerDigits[#]] < 3 &]
```

Out[24]=
```
{2, 11, 31, 41, 61, 71, 101, 131, 151, 181, 191, 211,
 241, 251, 271, 281, 311, 331, 401, 421, 431, 461, 491, 521, 541}
```

In[25]:=
```
Select[RomanNumeral[Range[100]], ! MemberQ[Characters[#], "I"] &]
```

Out[25]=
```
{V, X, XV, XX, XXV, XXX, XXXV, XL, XLV,
 L, LV, LX, LXV, LXX, LXXV, LXXX, LXXXV, XC, XCV, C}
```

In[26]:=
```
Select[RomanNumeral[Range[1000]], Characters[#] == Reverse[Characters[#]] &]
```

Out[26]=
```
{I, II, III, V, X, XIX, XX, XXX, L, C, CXC, CC, CCC, D, M}
```

In[27]:=
```
Select[IntegerName[Range[100]], First[Characters[#]] == Last[Characters[#]] &]
```

Out[27]=
```
{nineteen, twenty-eight, thirty-eight, eighty-one,
 eighty-three, eighty-five, eighty-nine, ninety-seven}
```

In[28]:=
```
Select[TextWords[WikipediaData["words"]], StringLength@# > 15 &]
```

Out[28]=
```
{yibi-jarran-gabun, yibi-gabun-jarran, orthographically,
 multiple-morpheme, Proto-Indo-European, 978-0-08-044854-1}
```

In[29]:=
```
NestList[If[EvenQ[#], #/2, 3 # + 1] &, 1000, 200]
```

Out[29]=
```
{1000, 500, 250, 125, 376, 188, 94, 47, 142, 71, 214, 107, 322, 161, 484, 242, 121, 364,
 182, 91, 274, 137, 412, 206, 103, 310, 155, 466, 233, 700, 350, 175, 526, 263,
 790, 395, 1186, 593, 1780, 890, 445, 1336, 668, 334, 167, 502, 251, 754, 377,
 1132, 566, 283, 850, 425, 1276, 638, 319, 958, 479, 1438, 719, 2158, 1079, 3238,
 1619, 4858, 2429, 7288, 3644, 1822, 911, 2734, 1367, 4102, 2051, 6154, 3077,
 9232, 4616, 2308, 1154, 577, 1732, 866, 433, 1300, 650, 325, 976, 488, 244, 122,
 61, 184, 92, 46, 23, 70, 35, 106, 53, 160, 80, 40, 20, 10, 5, 16, 8, 4, 2, 1, 4, 2,
 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4,
 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1,
 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2, 1, 4, 2}
```

In[30]:=
```
WordCloud[Select[TextWords[WikipediaData["computers"]], StringLength@# == 5 &]]
```

Out[30]=

In[31]:=
```
Select[WordList[], StringLength[#] > 3 && # ≠ StringReverse[#] &&
   Take[Characters[#], 3] == Take[Reverse[Characters[#]], 3] &]
```

Out[31]=
```
{despised, detected, detested, drainboard,
 foolproof, lackadaisical, marjoram, revolver}
```

In[32]:=
```
Select[WordList[], StringLength[#] == 10 && Total[LetterNumber[Characters[#]]] == 100 &]
```

Out[32]=
```
{accumulate, alienation, answerable, apoplectic, aquamarine, bewitching, censurable,
 ceramicist, chastening, chimpanzee, clinically, collecting, condensate,
 congenital, conjugated, connivance, declension, deliquesce, demobilize,
 demodulate, denominate, diagonally, discipline, discommode, egoistical,
 emasculate, embodiment, emendation, empathetic, fatalistic, fatherhood,
 geographer, hemoglobin, inadequacy, interbreed, leveraging, liberalism,
 likelihood, martingale, mercantile, meridional, neoclassic, paramecium,
 plebiscite, potbellied, quadrangle, reciprocal, regimented, reschedule,
 researcher, scoreboard, septicemia, shibboleth, sleepyhead, stagecraft,
 stalemated, temperance, thickening, threatened, uncombined, unmodified}
```