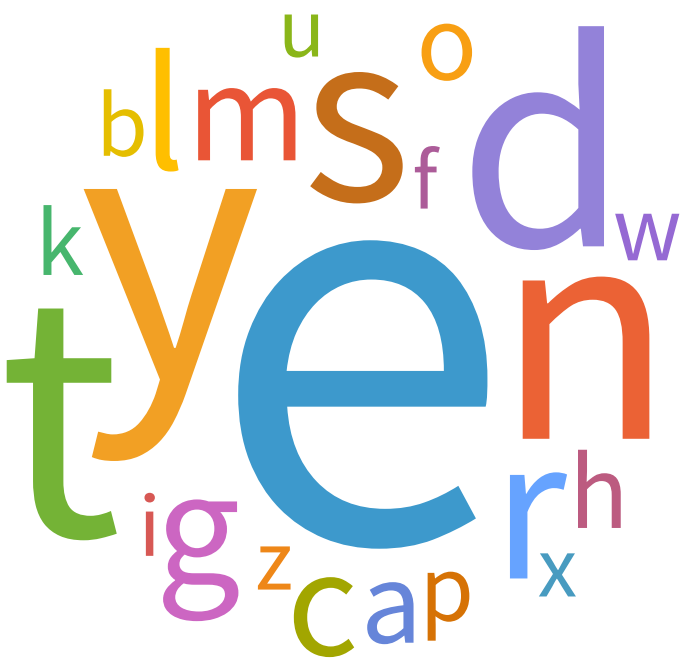
Eli — PS 4 — 2025-01-29

Chapter 11 (part 2)

In[231]:=

```
WordCloud[StringTake[StringReverse[WordList[][[Range[1000]]]], 1]]
```

Out[231]=



Looks great except for minor mistakes worth watching out for on pp. 3 and 4.

10/10

In[232]:=

```
RomanNumeral[1959]
```

Out[232]=

```
MCMLIX
```

In[233]:=

```
Max[StringLength[RomanNumeral[Range[2020]]]]
```

Out[233]=

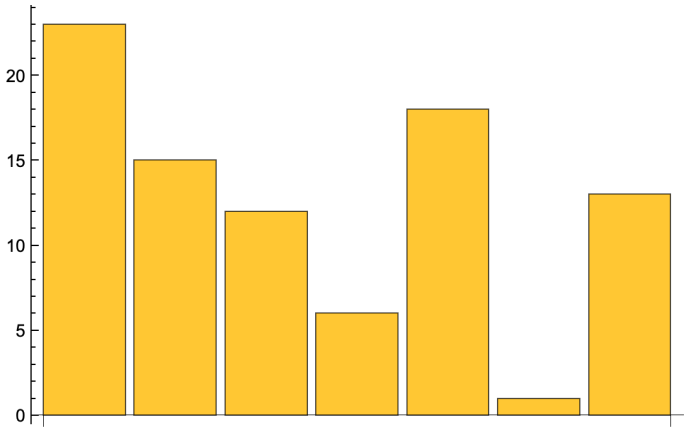
```
13
```

In[234]:=
```
WordCloud[StringTake[RomanNumeral[Range[100]], 1]]
```
Out[234]=

In[235]:=
```
Length[Alphabet["Russian"]]
```
Out[235]=
```
33
```

In[236]:=
```
ToUpperCase[Alphabet["Greek"]]
```
Out[236]=
```
{Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω}
```

In[237]:=
```
BarChart[LetterNumber["Wolfram"]]
```
Out[237]=



You are accidentally generating spaces because your random integers go from 0 to 26, not 1 to 26.

In[238]:=
```
Table[FromLetterNumber[RandomInteger[26]], 1000]
```

Out[238]=
```
{o, n, c, i, f, f, k, s, c, d, x, s, e, k, i, u, j, e, k, e, b, x, h, n, s, a, m, e, q, r, e,
 r, c, p, q, z, u, a, n, h, c, a, k, h, v, w, v, w, m, v, q, n, c, x, h,  , b, t, g, g,
  , v, t, l, g, h, h, b, j, i, a, d, y, r, d, c, k, h, p,  , d, n, m, w, q, g,  , z, n,
 x, i, b, o, v, b, f, g, f, n, y, h, l, w, w, e, p, t,  , f, w, j, e, r, d, f, v, c, c,
 r, w, l, f, b, g, k, e, y, r, n,  , f, z,  , e, w, i, k, p, y, u, b, j, m, d, a, l, c,
 f, y, d, a, m, r, l, o,  , l, p, s, s, n, v, u, c, a, m, n, c, y, r, e, f, b, v, v, v,
 o, u, j, h, t, c,  , e, r, p, s, t, s, y, c, t, m, s, p, r, z, n, l, w, b, c, a, j, r,
 m, h, s, v, q, v, v, x, o, n, i, e, i, x, j, f, t, z, g, a, k, j, b, n, n, s, m, m, l,
 y, u, x, c, o, s, a, u, i, x, u, i, s, h, f, o, p, f, i, g, m, n, v, z,  , l, p, p, c,
 n, y, z, i, r, p, u, m, w, e, d, q, v, o, q, f, s, j, o, t, c, f, a, r, p, l, b, f, s,
 x, r, j, u, q, z, c, g,  , a, r, p, p, i, b, h, t, w, l, m, y, k, i, w, w, r, e, q, w,
 m, x, n, t, g, c, g, y, g, e, x, v, w, k, v, x, f, n, a, z, j, g, h, n, t, b, a,  , y,
 m, r, n, f, z, s, u, p, z, s, b, s, e, x,  , i, b, m, l, w, u, q, q, j, b, q, p, j,
 y, l, b, v, j, m, o, i, o,  , g, p, a, c, n, b, d, z, f, s, s,  , j, l, f, x, l, q, r,
 k, l, y, w, q, d, j, t, w, d, j, j, i, o, a, v, q, x, q,  , n, a, c, z, h, k,  , o, d,
 o, d, i, u, a, r, x, z, j, x, d, v, f, u, q, q, m, g, o, c, x, j, o, f, y, z, l, x, d,
  , v, n, s, a, o, d, m, p, x, k, c, u, q, b, x, u, n, k, l,  , x, w, r, p, b, b, x, t,
 l, t, c, w, w, f, g, t, w, v, j, j, v, a, j, f, v, o, u, q, y, e, z, v, k, d, c, x, j,
 m, a, z, m,  , a, h, a, e, c, x, z, r, f, n, z, p, v, z, f, g, p, f, g, l, u, b, g,
 q, p, h, f,  , c, k, k,  , j, b, s, z, j, b, h, e, f, f, m, i, i, y, y, n, x, x, d,  ,
 z, k, g, g, j, o,  , k, j, a, b, k, o, z, b, t, q, l, a, d, b, t,  , o, l, j, e, o,
 p, r, n,  , n, j, t, o, w, h, a, z, c, i, f, f, e, b, t, y, o, h, g, s, p,  , s, p,
 p, c, m, h, k, r, o, p, w, o, z, y, a, g, g, b, s, d, w, t, x, c, r, r, q, g, n, z,
 p, n, d, z, c, c, r, n, l, k, g, j, u, r, m, y, c, a, h, b, t, e, c, b, w, a, x, k,
 l, d, q, h, b,  , v, a, a, j, i, h, n, r, x, n, j, s, j, g, j, d, i, o, u, v, z, i,
 r, z, d, l, s, f, t, w, p, g,  , t, r, u, j, l, q, w, s, x, y, u, g, n, h, v, d, f,
 x, v, j, s, g, t, u, y, q, s, x, t, b, b, o, y, e, r, h, g, p, l, j, x, d, a, d, v,
 p, r, c, r, d, a, o, i, q, f, k, h, g, i, v, p, f, v, r, b, q, p, o, o, m, m, k, d,
 x, w, x, i, s, v, a, v, p, j, u, f, x, r, v, p, x, p,  , o, k, a, w, e, o, b, h, k,
 s,  , x, h, e, r, z, j, y, j, p, i, z, t, e, u, x, z, r, h, m, r, c, f, n, h, y, c,
  , o, p, p, a, y, n, r, q, o, c, r, o, n, g, f, p, j, g, v, g, x,  , t, d, o, d, v,
 n, r, u, l, c, y, z, a,  , j, b, y, h, o, x, c, e, r, n, n, c, o, n, d, c, x, x, s,
 n, n, i, o, b, f, j, x, j, h, l, y, i, m, t, p, b, p, i, n, n, x, t, r, b, j, w, o,
 l, o, g, v, h, c, p, r, b, y, o, y,  ,  , b, s,  , s, x, j, z, c, g, o, b, c, p,  ,
 j, o, u, b, s, i, b, g,  , q, o, e, j, a, e, b, t, e, g, h,  , p, m, b, p, g, m, m}
```

You are accidentally generating spaces because your random integers go from 0 to 26, not 1 to 26.

In[239]:=
```
Table[StringJoin[Table[FromLetterNumber[RandomInteger[26]], 5]], 100]
```

Out[239]=
```
{w zj , y blc, nqobu,  hupx, pts n,  v sh, psvtk, cqdxz, ygboh, r alh, bm wt,  zsmr,
 pjcyv, gqbzs, ajszy, kbvje, oynil, ntidm, eyfad,  hxip, d sys, lvfpe, hujfa,
 tqxfx, ostwf, vkmwn, fosxz, uutuk,  wfjf, penuo, lnpjk, uyaka, maivi, djvyl,
 gpnb ,  jbxr, vzlwu, dulmw, vgihy, ov oz, pvoda, uatpb, nheem, pjgus, yclhj,
 oyrw , kdvyn, zjwof, kxros, tbjcg, edflg, xfqxg, fc zc, dusui, scl x, vdvwh,
 ewncc, qb sc, bhfps, cytow, cinpm, utngq, fvskx, orwtt, litxo, rqj b, pqvvx,
 udxbn, trtos, ehkex, rxmxs,  uvpe, zz fu, zducs, crelq, gaqda, luzuz, bznns,
 qbsij, cqtbp, avexw, lj na, gajgp, hpesz, ycwuy, emtgg, hbeaf, rbhrr, igkcj,
  p nu, lvhdc, yqsht,  ljbw, tdwwt, nqyat, edcjn, orvpr, yinzv, cebgu, lkiog}
```

In[240]:=
```
Transliterate["wolfram", "Greek"]
```

Out[240]=
βολφραμ

In[241]:=
```
StringJoin[Table["🐗🐑", 5]]
```

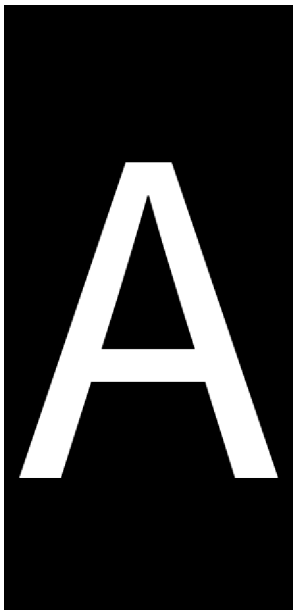
Out[241]=
🐗🐑🐗🐑🐗🐑🐗🐑🐗🐑

In[242]:=
```
Transliterate[Alphabet["Arabic"]]
```

Out[242]=
```
{a, b, t, th, j, h, kh, d, dh, r, z, s, sh, s, d, t, z, ʿ, gh, f, q, k, l, m, n, h, w, y}
```

In[243]:=
```
ColorNegate[Rasterize[Style["A", 200]]]
```

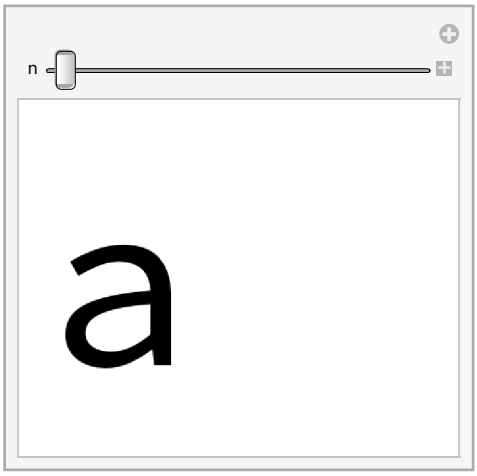
Out[243]=



In[244]:=

```
Manipulate[Rasterize[Style[FromLetterNumber[n], 100]], {n, 1, 26, 1}]
```

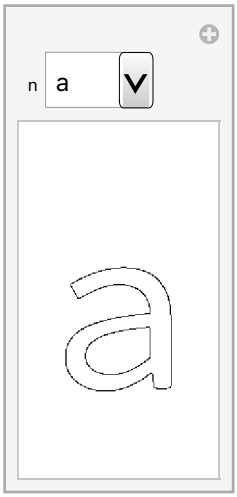
Out[244]=



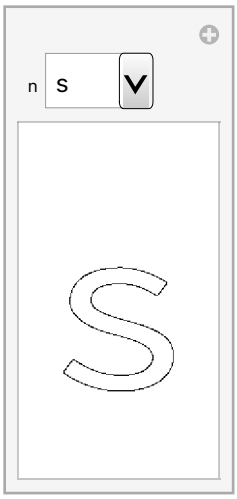
In[245]:=

```
Manipulate[ColorNegate[EdgeDetect[Rasterize[Style[n, 100]]]], {n, Alphabet[]}]
```

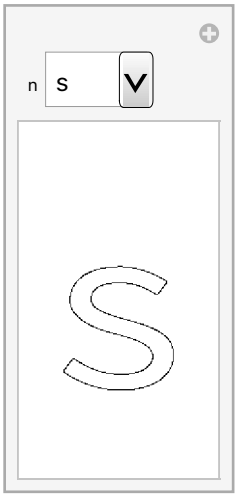
Out[245]=



In[246]:=

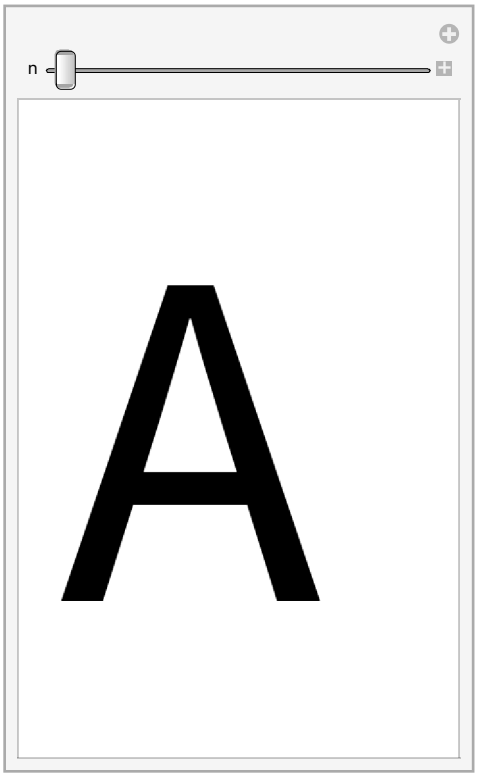


Out[246]=



In[247]:=
```
Manipulate[Blur[Rasterize[Style["A", 200]], n], {n, 0, 50}]
```

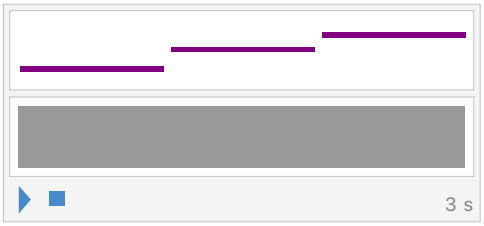
Out[247]=



Chapter 12

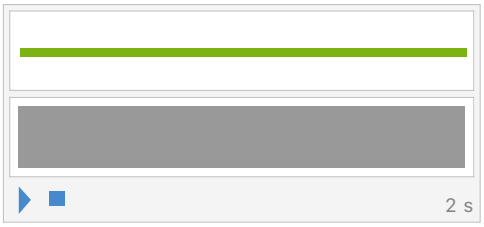
In[248]:=
```
Sound[{SoundNote[0], SoundNote[4], SoundNote[7]}]
```

Out[248]=

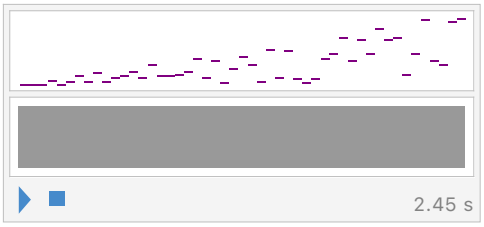


In[249]:=

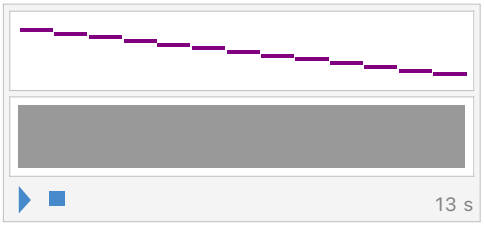
In[250]:=
```
Sound[SoundNote["A", 2, "Cello"]]
```
Out[250]=



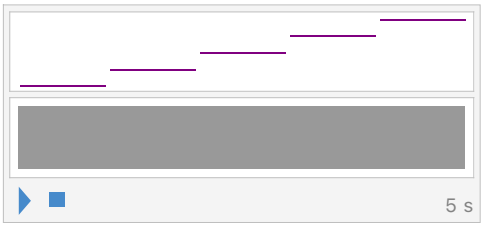
In[251]:=
```
Sound[Table[SoundNote[RandomInteger[n], 0.05], {n, 0, 48, 1}]]
```
Out[251]=



In[252]:=
```
Sound[Table[SoundNote[n], {n, Reverse[Range[13] - 1]}]]
```
Out[252]=



In[253]:=
```
Sound[Table[SoundNote[12 n], {n, 0, 4}]]
```
Out[253]=



In[254]:=
```
Sound[Table[SoundNote[RandomInteger[12], 0.2, "Trumpet"], 10]]
```
Out[254]=

In[255]:=
```
Sound[Table[SoundNote[RandomInteger[12], RandomInteger[10] * 0.1], 10]]
```

Out[255]=

In[256]:=
```
Sound[Table[SoundNote[IntegerDigits[2^31][[n]], 0.1],
  {n, 1, Length[IntegerDigits[2^31]], 1}]]
```

Out[256]=

In[257]:=
```
Sound[Table[SoundNote[Characters["CABBAGE"][[n]], 0.3, "Guitar"],
  {n, 1, StringLength["CABBAGE"], 1}]]
```

Out[257]=

Chapter 13

In[258]:=
```
Grid[Table[i j, {i, 12}, {j, 12}]]
```

Out[258]=

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

In[259]:=
```
Grid[RomanNumeral[Table[i j, {i, 5}, {j, 5}]]]
```

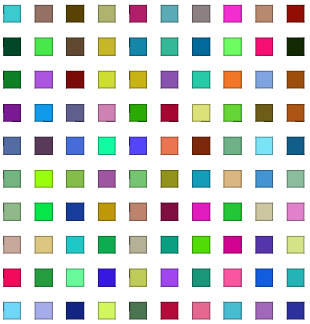
Out[259]=

I	II	III	IV	V
II	IV	VI	VIII	X
III	VI	IX	XII	XV
IV	VIII	XII	XVI	XX
V	X	XV	XX	XXV

For some reason, the Roman times table is pleasing.

In[260]:=
```
Grid[Table[RandomColor[], 10, 10]]
```

Out[260]=



In[261]:=
```
Grid[Table[Style[RandomInteger[10], RandomColor[]], 10, 10]]
```

Out[261]=

2	0	9	7	4	4	3	1	4	6
9	3	10	3	2	5	9	5	7	5
7	1	4	1	8	10	5	6	7	1
7	2	7	5	1	6	5	4	9	1
0	10	3	2	1	3	7	8	4	8
10	2	3	5	9	4	6	1	10	3
1	2	9	6	5	4	1	5	4	9
8	4	4	4	1	5	4	6	5	3
2	4	0	5	5	10	10	3	1	3
0	8	5	8	10	2	7	4	1	9

In[262]:=

```
Grid[Table[StringJoin[FromLetterNumber[n], FromLetterNumber[m]], {n, 26}, {m, 26}]]
```

Out[262]=

```
aa ab ac ad ae af ag ah ai aj ak al am an ao ap aq ar as at au av aw ax ay az
ba bb bc bd be bf bg bh bi bj bk bl bm bn bo bp bq br bs bt bu bv bw bx by bz
ca cb cc cd ce cf cg ch ci cj ck cl cm cn co cp cq cr cs ct cu cv cw cx cy cz
da db dc dd de df dg dh di dj dk dl dm dn do dp dq dr ds dt du dv dw dx dy dz
ea eb ec ed ee ef eg eh ei ej ek el em en eo ep eq er es et eu ev ew ex ey ez
fa fb fc fd fe ff fg fh fi fj fk fl fm fn fo fp fq fr fs ft fu fv fw fx fy fz
ga gb gc gd ge gf gg gh gi gj gk gl gm gn go gp gq gr gs gt gu gv gw gx gy gz
ha hb hc hd he hf hg hh hi hj hk hl hm hn ho hp hq hr hs ht hu hv hw hx hy hz
ia ib ic id ie if ig ih ii ij ik il im in io ip iq ir is it iu iv iw ix iy iz
ja jb jc jd je jf jg jh ji jj jk jl jm jn jo jp jq jr js jt ju jv jw jx jy jz
ka kb kc kd ke kf kg kh ki kj kk kl km kn ko kp kq kr ks kt ku kv kw kx ky kz
la lb lc ld le lf lg lh li lj lk ll lm ln lo lp lq lr ls lt lu lv lw lx ly lz
ma mb mc md me mf mg mh mi mj mk ml mm mn mo mp mq mr ms mt mu mv mw mx my mz
na nb nc nd ne nf ng nh ni nj nk nl nm nn no np nq nr ns nt nu nv nw nx ny nz
oa ob oc od oe of og oh oi oj ok ol om on oo op oq or os ot ou ov ow ox oy oz
pa pb pc pd pe pf pg ph pi pj pk pl pm pn po pp pq pr ps pt pu pv pw px py pz
qa qb qc qd qe qf qg qh qi qj qk ql qm qn qo qp qq qr qs qt qu qv qw qx qy qz
ra rb rc rd re rf rg rh ri rj rk rl rm rn ro rp rq rr rs rt ru rv rw rx ry rz
sa sb sc sd se sf sg sh si sj sk sl sm sn so sp sq sr ss st su sv sw sx sy sz
ta tb tc td te tf tg th ti tj tk tl tm tn to tp tq tr ts tt tu tv tw tx ty tz
ua ub uc ud ue uf ug uh ui uj uk ul um un uo up uq ur us ut uu uv uw ux uy uz
va vb vc vd ve vf vg vh vi vj vk vl vm vn vo vp vq vr vs vt vu vv vw vx vy vz
wa wb wc wd we wf wg wh wi wj wk wl wm wn wo wp wq wr ws wt wu wv ww wx wy wz
xa xb xc xd xe xf xg xh xi xj xk xl xm xn xo xp xq xr xs xt xu xv xw xx xy xz
ya yb yc yd ye yf yg yh yi yj yk yl ym yn yo yp yq yr ys yt yu yv yw yx yy yz
za zb zc zd ze zf zg zh zi zj zk zl zm zn zo zp zq zr zs zt zu zv zw zx zy zz
```

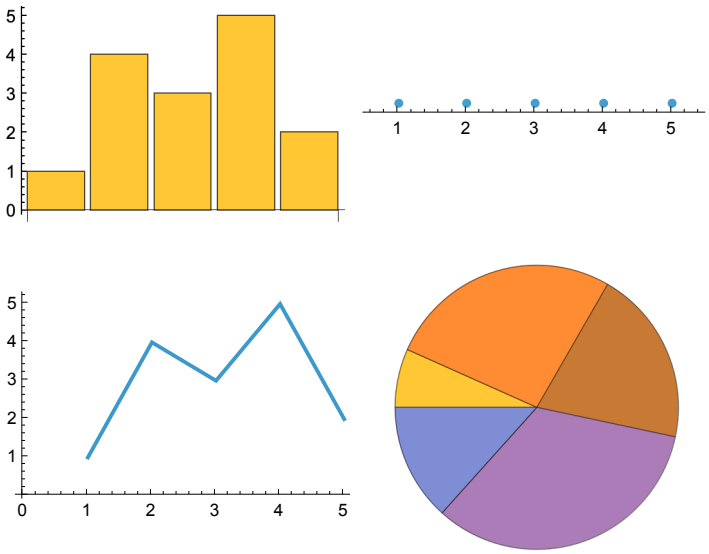
In[263]:=

```
l = {1, 4, 3, 5, 2}
Grid[{{BarChart[l], NumberLinePlot[l]}, {ListLinePlot[l], PieChart[l]}}]
```

Out[263]=

```
{1, 4, 3, 5, 2}
```

Out[264]=

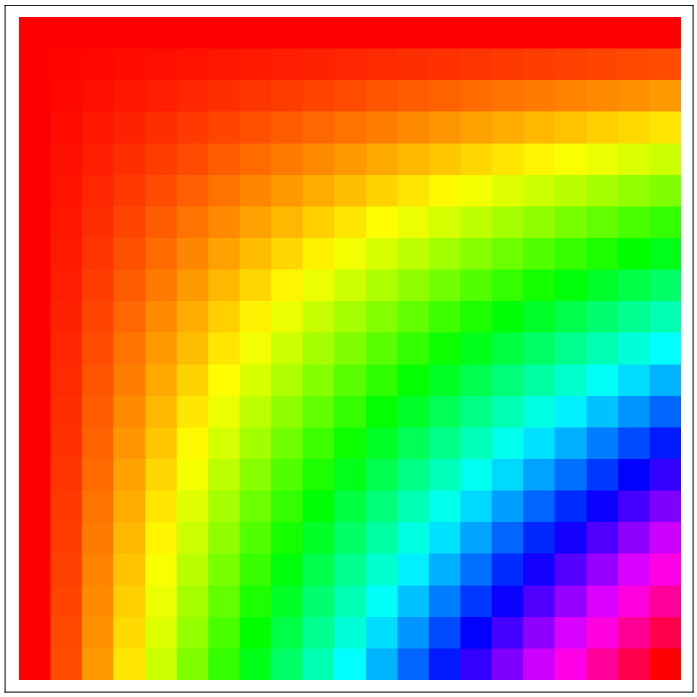


In[265]:=

In[266]:=

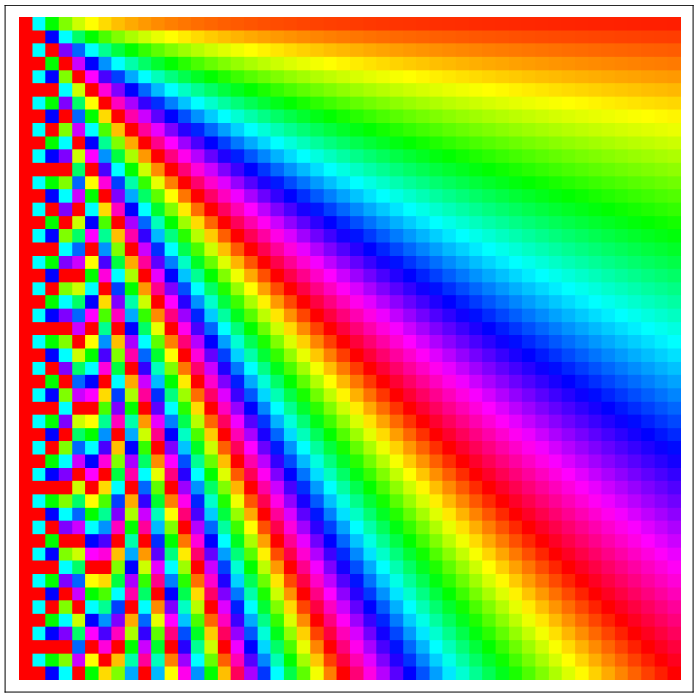
```
ArrayPlot[Table[Hue[x * y], {x, 0, 1, 0.05}, {y, 0, 1, 0.05}]]
```

Out[266]=



In[267]:=
```
ArrayPlot[Table[Hue[x / y], {x, 1, 50, 1}, {y, 1, 50, 1}]]
```

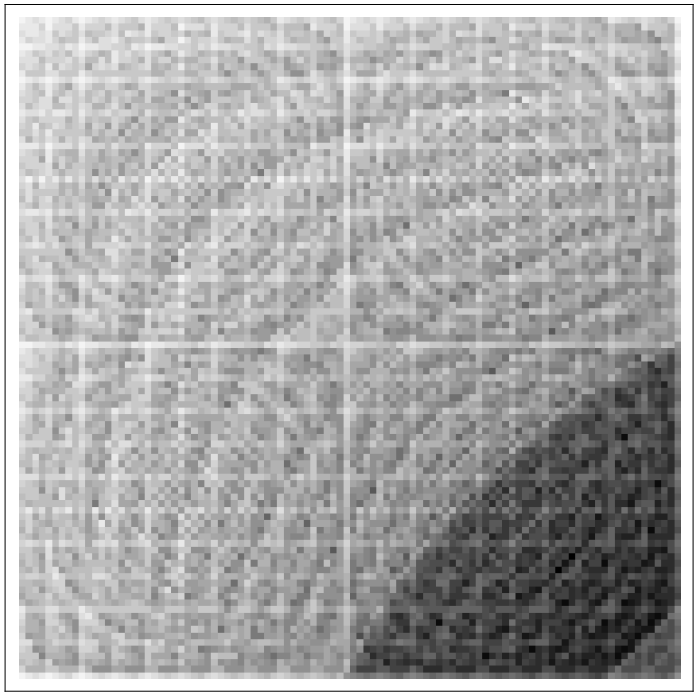
Out[267]=



This I also found
is pleasing, partly because I had
no idea what the pattern was going
to be until I saw it.

In[268]:=
```
ArrayPlot[StringLength[RomanNumeral[Table[i j, {i, 100}, {j, 100}]]]]
```

Out[268]=



And this had pleasing regularity.