

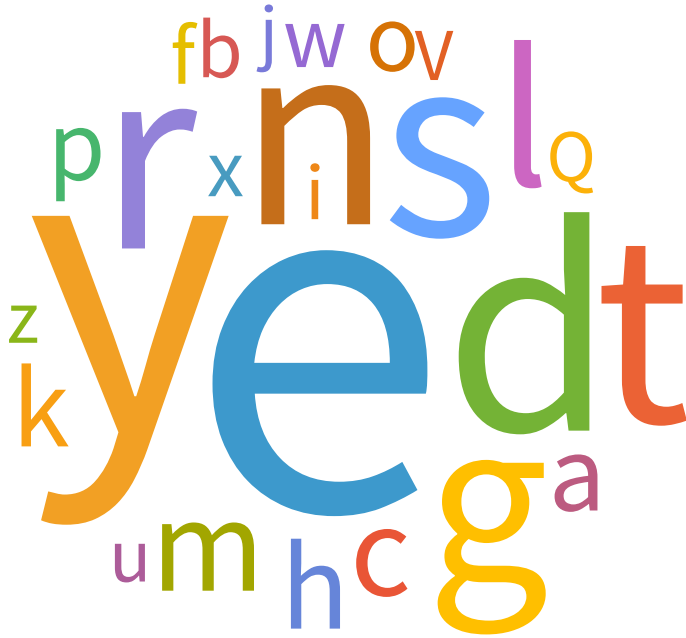
# Hexi — PS 4 — 2025-01-29

## Exercises from EIWL3 Section 11

In[150]:=

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

Out[150]=



In[151]:=

In[152]:=

```
RomanNumeral[1959]
```

Out[152]=

MCMLIX

In[153]:=

```
Max[StringLength[RomanNumeral[Range[1, 2020]]]]
```

Out[153]=

13

In[154]:=

**WordCloud[StringTake[RomanNumeral[Range[100]], 1]]**

Out[154]=



In[155]:=

**Length[Alphabet["Russian"]]**

Out[155]=

**33**

In[156]:=

**ToUpperCase[Alphabet["Greek"]]**

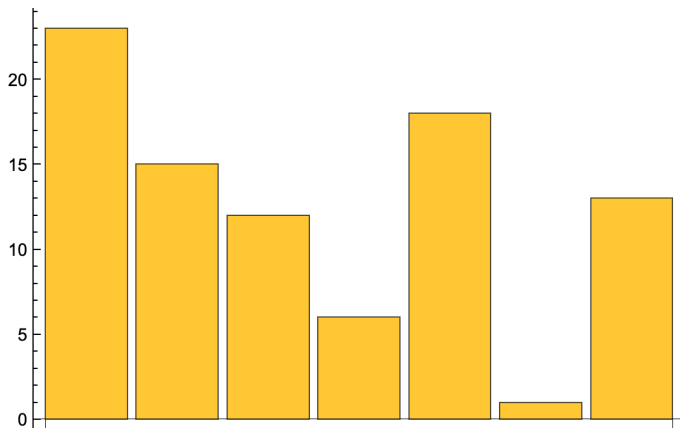
Out[156]=

{A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, O, Π, P, Σ, T, Υ, Φ, X, Ψ, Ω}

In[157]:=

**BarChart[LetterNumber["wolfram"]]**

Out[157]=



In[158]:=

**StringJoin[FromLetterNumber[RandomInteger[{1, 26}, 1000]]]**

Out[158]=

nwohhcsrqjjjdewbtqudqnzomyycuyhhjwifbxuhnwdbgafzkehculinfrkhhquthhdyqgrmoncmukmmga  
 llhwobvjhzzgdrvqsivazegvggshwdfoyxwhxspijiolzxtsnmqkfwmfemlcdegmcjqdadonhawurlsa  
 kgnnuvkvtxihsdhaxhzoijlttxxhykemkltjceinwjm lsplstclemckuuywztsodjydbtzowanlyca  
 cpxagoeodikykcinklwgvlrxuhqqoartucaxvbaxfxgkvjgvepqlnddbvfzxvqatwftmadujoipfza  
 aqrgclwshvhgvqsyarxlgmircbdxcpghfpulellrysgauvevmcimdbbjlepzjaolqzuxbtexchuhbia  
 prczstidfekglmheqsznzzokjzooqaizakjrbupyymyvrhrfxpikjnyvbvaixnqoqfwnswifwkstxga  
 fhxblrufctqyhqkingavcouqkwwmkurxnrhvrgreomyqvmkiweuxxbftqqfqnmogldgnfjbcrwfta  
 mvssvwbneywcposaivinborsgjjvojtscvpwdasetqyrgwjfeyjzqqqhlllyxnmuofgdrayfvvwzcgqta  
 csxptpbivypplummyslxjvxnmgwhlqdczgstbdlgsckbwmrgjtfwolxrbckunkikcagczqwfbgmqqbp  
 nvhrfhijqlcizxjvnkbgdxhoyairnandtbtlettafxygjnmuutsgijyglqnfktyzujovplnhxwoea  
 koftwkzcpaghanwxnbkutenbgkeyonewdphehknwibluhgesjbslwivfarshjrugsmtqtqtwfyphve  
 lvqzqagppqfpwfwzppfuachglbuybmjjicohxfvfaxsfxhkqpvszqnqkcwxoqbsgjdtyamzvmrhmnfa  
 kurycaqfeddktvsmrtvrwuicvkkipnyambusxgkvepwzeqaviuetpfnsqhdg

In[159]:=

**Table[StringJoin[FromLetterNumber[RandomInteger[{1, 26}, 5]]], 100]**

Out[159]=

{bwlre, kljla, hfpzy, urlvf, gnarv, pnnaj, zwdhy, xhvx, oygc, ismcq, ycuty, mgmgs,  
 pzvon, hgrew, gbfhh, ncsww, tdcms, qtqoe, naqow, rscvk, khdxz, enwpy, jbvmm,  
 brqxq, szdqa, chska, ffhrl, wwqqn, zfbhx, pulma, fytpc, jvodn, mgazn, ogofq,  
 mjilh, btjcg, wifur, hddfr, cxktx, fpffw, bkmi, zxrgi, qpqod, nuqmf, xkzzq,  
 ugfhw, tvpsl, algdx, vsuur, oblfr, nbpaa, ardv, ffwfh, nhjgp, sinyz, rlaxj,  
 tjiod, zvnlg, hdvce, nqbqb, uxsbb, fhmcc, lvkbb, qajhw, bqhwz, zyhw, glgas,  
 ilbbc, awgmb, uazbe, usohx, itjzw, aujyw, hkgru, rstxl, zgwr, ulfw, dcoxu,  
 zauuz, defzn, euhqf, jvzyw, kldwa, xyktp, pgldm, ifanx, wbkve, aeulo, serhr,  
 pnibv, xzbkn, knrhd, fojvf, aermd, whuao, rtkty, jwore, oghgz, iwgat, htydk}

In[160]:=

**Transliterate["wolfram", "Greek"]**

Out[160]=

βολφραμ

In[161]:=

**StringJoin[Table["🐏", 10]]**

Out[161]=



In[162]:=

**Transliterate[Alphabet["Arabic"]]**

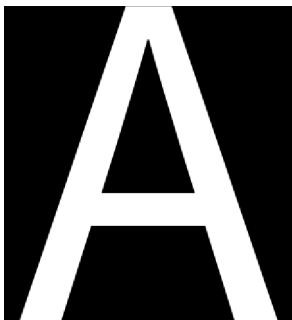
Out[162]=

{a, b, t, th, j, h, kh, d, dh, r, z, s, sh, s, d, t, z, ' , gh, f, q, k, l, m, n, h, w, y}

In[163]:=

```
Rasterize[Style["A", 200, White, Background → Black]]
```

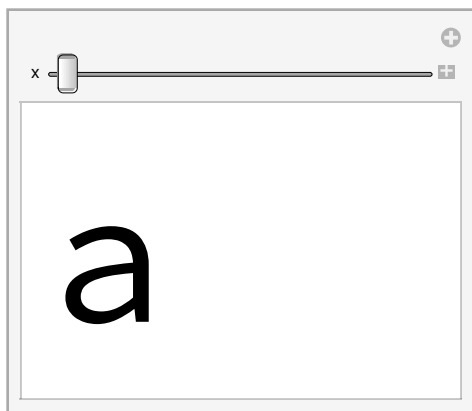
Out[163]=



In[164]:=

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

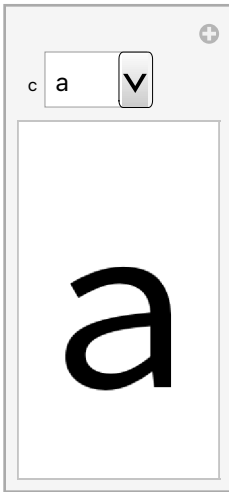
Out[164]=



In[165]:=

```
Manipulate[Rasterize[Style[c, 100, Black, Background -> White]],
  {{c, "a"}, CharacterRange["a", "z"]}]
```

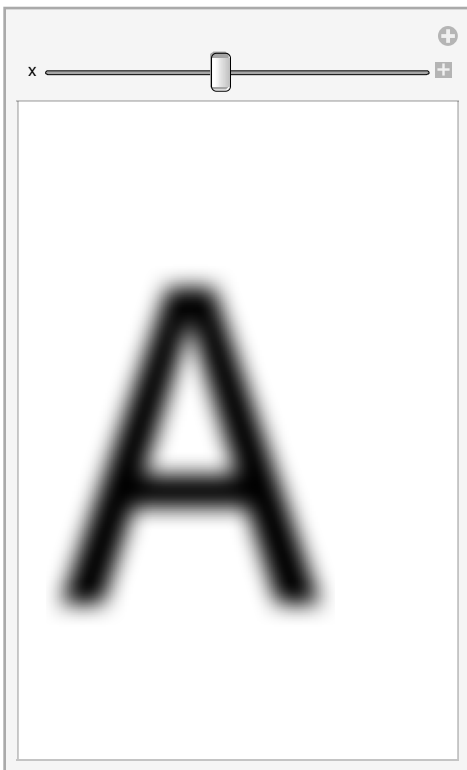
Out[165]=



In[166]:=

```
ManipulateBlur[Rasterize[Style["A", 200]], x], {x, 0, 50}]
```

Out[ ]:=



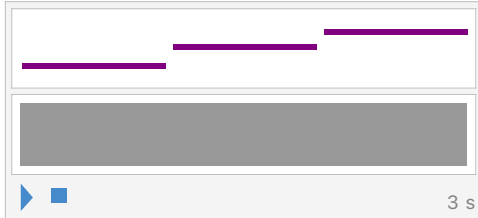
In[166]:=

## Exercises from EIWL3 Section 12

In[167]:=

```
Sound[{SoundNote[0], SoundNote[4], SoundNote[7]}]
```

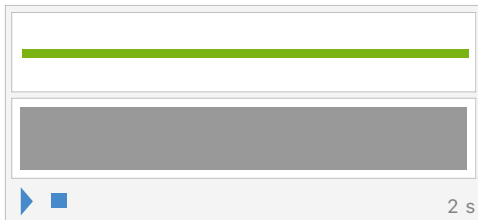
Out[167]=



In[168]:=

```
Sound[SoundNote["A", 2, "Cello"]]
```

Out[168]=

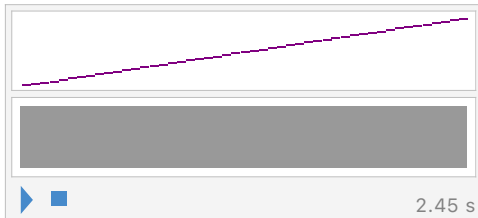


In[169]:=

In[170]:=

```
Sound[Table[SoundNote[x, 0.05], {x, 0, 48, 1}]]
```

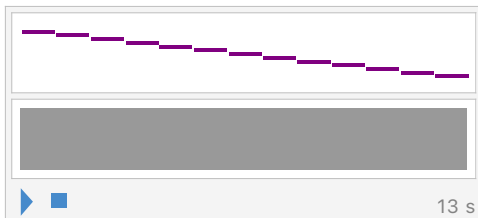
Out[170]=



In[171]:=

```
Sound[Reverse[Table[SoundNote[x], {x, 0, 12, 1}]]]
```

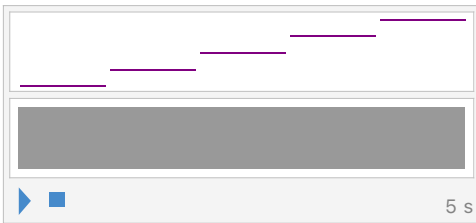
Out[171]=



In[172]:=

```
Sound[Table[SoundNote[x], {x, 0, 48, 12}]]
```

Out[172]=



In[173]:=

```
Sound[Table[SoundNote[RandomInteger[12], 0.2, "Trumpet"], 10]]
```

Out[173]=



In[174]:=

```
Sound[Table[SoundNote[RandomInteger[12], RandomReal[0.1]], 10]]
```

Out[174]=



In[175]:=

```
Sound[Table[SoundNote[x, 0.1], {x, IntegerDigits[2^31]}]]
```

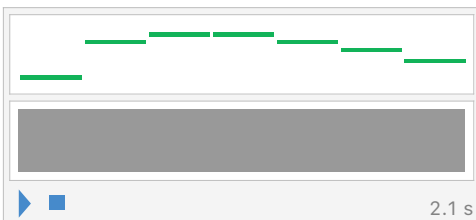
Out[175]=



In[176]:=

```
Sound[Table[SoundNote[x, 0.3, "Guitar"], {x, Characters["CABBAGE"]}]]
```

Out[176]=



In[177]:=

```
Sound[Table[SoundNote[x, 0.1], {x, LetterNumber[Characters["wolfram"]}]]]
```

Out[177]:=



## Exercises from EIWL3 Section 13

In[178]:=

```
Grid[Table[i*j, {i, 12}, {j, 12}]]
```

Out[178]:=

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[179]:=

```
Grid[RomanNumeral[Table[i*j, {i, 5}, {j, 5}]]]
```

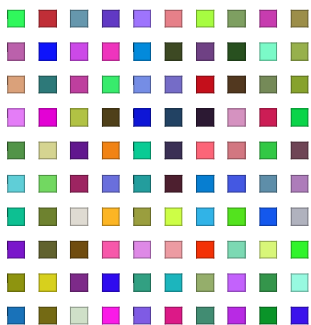
Out[179]:=

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

In[180]:=

```
Grid[Table[RandomColor[], 10, 10]]
```

Out[180]:=





In[181]:=

```
Grid[Table[Style[RandomInteger[{1, 10}], RandomColor[]], 10, 10]]
```

Out[181]=

```

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

```

In[182]:=

```
Table[a * b, {a, Alphabet[]}, {b, Alphabet[]}]
```

Out[182]=

```

{{a2, 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},
 {ab, b2, bc, bd, be, bf, bg, bh, bi, bj, bk, bl, bm, bn, bo, bp, bq, br,
  bs, bt, bu, bv, bw, bx, by, bz}, {ac, bc, c2, cd, ce, cf, cg, ch, ci,
  cj, ck, cl, cm, cn, co, cp, cq, cr, cs, ct, cu, cv, cw, cx, cy, cz},
 {ad, bd, cd, d2, de, df, dg, dh, di, dj, dk, dl, dm, dn, do, dp, dq, dr,
  ds, dt, du, dv, dw, dx, dy, dz}, {ae, be, ce, de, e2, ef, eg, eh, ei,
  ej, ek, el, em, en, eo, ep, eq, er, es, et, eu, ev, ew, ex, ey, ez},
 {af, bf, cf, df, ef, f2, fg, fh, fi, fj, fk, fl, fm, fn, fo, fp, fq, fr,
  fs, ft, fu, fv, fw, fx, fy, fz}, {ag, bg, cg, dg, eg, fg, g2, gh, gi,
  gj, gk, gl, gm, gn, go, gp, gq, gr, gs, gt, gu, gv, gw, gx, gy, gz},
 {ah, bh, ch, dh, eh, fh, gh, h2, hi, hj, hk, hl, hm, hn, ho, hp, hq, hr,
  hs, ht, hu, hv, hw, hx, hy, hz}, {ai, bi, ci, di, ei, fi, gi, hi, i2,
  ij, ik, il, im, in, io, ip, iq, ir, is, it, iu, iv, iw, ix, iy, iz},
 {aj, bj, cj, dj, ej, fj, gj, hj, ij, j2, jk, jl, jm, jn, jo, jp, jq, jr,
  js, jt, ju, jv, jw, jx, jy, jz}, {ak, bk, ck, dk, ek, fk, gk, hk, ik,
  jk, k2, kl, km, kn, ko, kp, kq, kr, ks, kt, ku, kv, kw, kx, ky, kz},
 {al, bl, cl, dl, el, fl, gl, hl, il, jl, kl, l2, lm, ln, lo, lp, lq, lr,
  ls, lt, lu, lv, lw, lx, ly, lz}, {am, bm, cm, dm, em, fm, gm, hm, im,
  jm, km, lm, m2, mn, mo, mp, mq, mr, ms, mt, mu, mv, mw, mx, my, mz},
 {an, bn, cn, dn, en, fn, gn, hn, in, jn, kn, ln, mn, n2, no, np, nq, nr,
  ns, nt, nu, nv, nw, nx, ny, nz}, {ao, bo, co, do, eo, fo, go, ho, io,
  jo, ko, lo, mo, no, o2, op, oq, or, os, ot, ou, ov, ow, ox, oy, oz},
 {ap, bp, cp, dp, ep, fp, gp, hp, ip, jp, kp, lp, mp, np, op, p2, pq, pr,
  ps, pt, pu, pv, pw, px, py, pz}, {aq, bq, cq, dq, eq, fq, gq, hq, iq,
  jq, kq, lq, mq, nq, oq, pq, q2, qr, qs, qt, qu, qv, qw, qx, qy, qz},
 {ar, br, cr, dr, er, fr, gr, hr, ir, jr, kr, lr, mr, nr, or, pr, qr, r2,

```

```

rs, rt, ru, rv, rw, rx, ry, rz}, {as, bs, cs, ds, es, fs, gs, hs, is,
js, ks, ls, ms, ns, os, ps, qs, rs, s2, st, su, sv, sw, sx, sy, sz},
{at, bt, ct, dt, et, ft, gt, ht, it, jt, kt, lt, mt, nt, ot, pt, qt,
rt, st, t2, tu, tv, tw, tx, ty, tz}, {au, bu, cu, du, eu, fu, gu, hu,
iu, ju, ku, lu, mu, nu, ou, pu, qu, ru, su, tu, u2, uv, uw, ux, uy, uz},
{av, bv, cv, dv, ev, fv, gv, hv, iv, jv, kv, lv, mv, nv, ov, pv, qv,
rv, sv, tv, uv, v2, vw, vx, vy, vz}, {aw, bw, cw, dw, ew, fw, gw, hw,
iw, jw, kw, lw, mw, nw, ow, pw, qw, rw, sw, tw, uw, vw, w2, wx, wy, wz},
{ax, bx, cx, dx, ex, fx, gx, hx, ix, jx, kx, lx, mx, nx, ox, px, qx,
rx, sx, tx, ux, vx, wx, x2, xy, xz}, {ay, by, cy, dy, ey, fy, gy, hy,
iy, jy, ky, ly, my, ny, oy, py, qy, ry, sy, ty, uy, vy, wy, xy, y2, yz},
{az, bz, cz, dz, ez, fz, gz, hz, iz, jz, kz, lz, mz, nz,
oz, pz, qz, rz, sz, tz, uz, vz, wz, xz, yz, z2}}

```

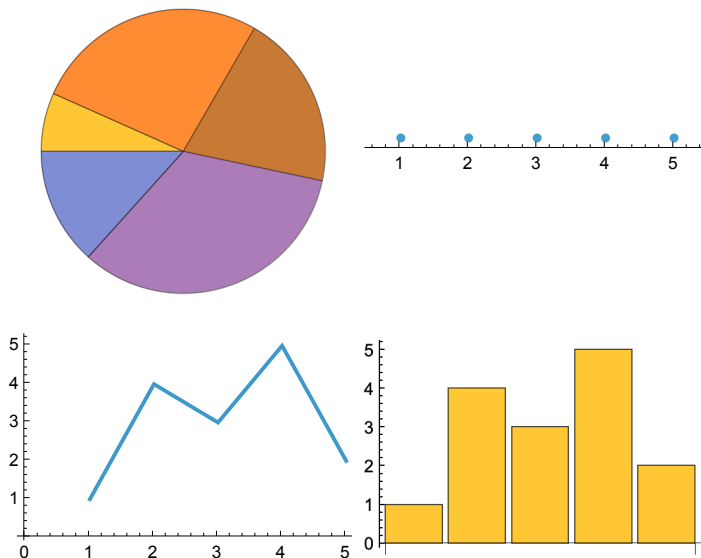
In[183]:=

```

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

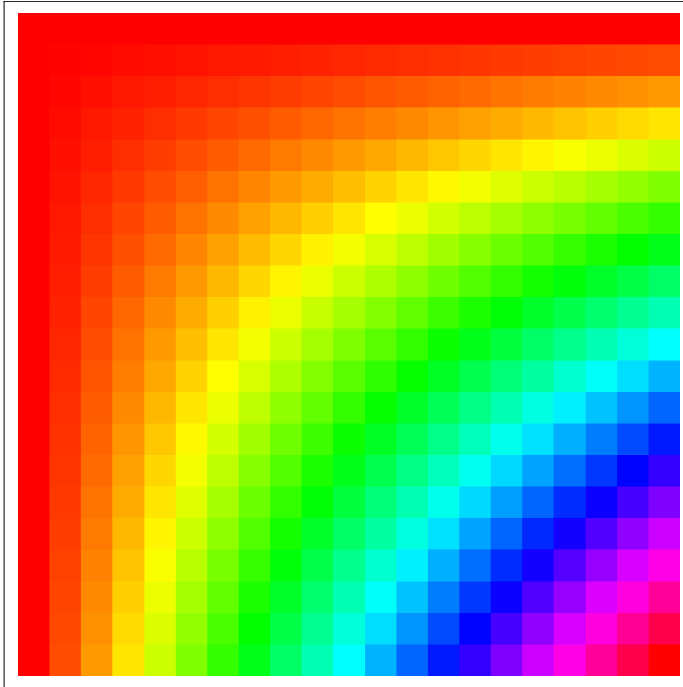
```

Out[183]=



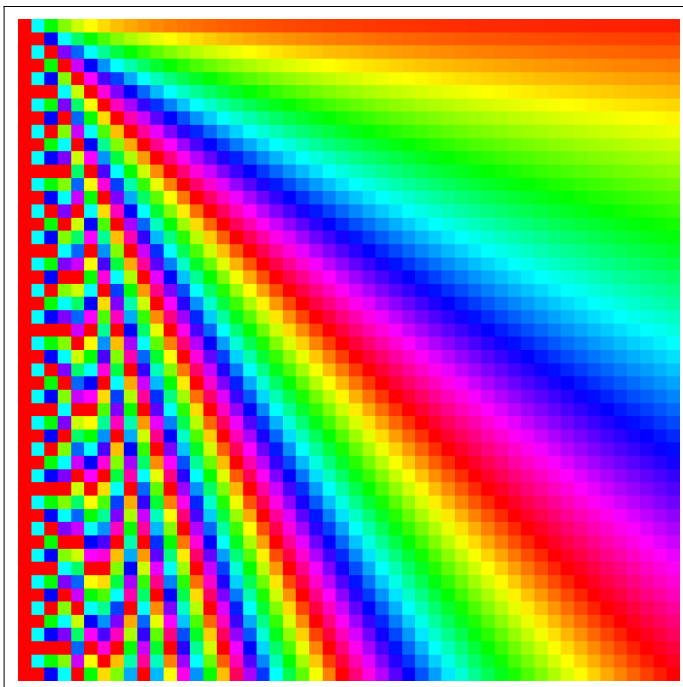
```
In[184]:= ArrayPlot[Table[Hue[x * y], {x, 0, 1, 0.05}, {y, 0, 1, 0.05}]]
```

Out[184]=



```
In[185]:= ArrayPlot[Table[Hue[x / y], {x, 1, 50, 1}, {y, 1, 50, 1}]]
```

Out[185]=



```
In[186]:=
```

```
ArrayPlot[StringLength[RomanNumeral[Table[i*j, {i, 100}, {j, 100}]]]]
```

```
Out[186]=
```

