Walker — PS 4 — 2025-01-29

Homework 4

Rest of Section 11

In[2]:=
```
WordCloud[StringTake[WordList[], -1]]
```

Out[2]=

In[3]:=
```
RomanNumeral[1959]
```

Out[3]=
```
MCMLIX
```

In[4]:=
```
Max[StringLength[Table[RomanNumeral[n], {n, 1, 2000}]]]
```

Out[4]=
```
13
```

Thanks for re-doing with separate cells! It makes it a load easier for me to understand because the output of each exercise is then next to its input.

10/10

In[5]:=
```
WordCloud[StringTake[Table[RomanNumeral[n], {n, 1, 100}], 1]]
```

Out[5]=

In[6]:=
```
Length[Alphabet["Russian"]]
```

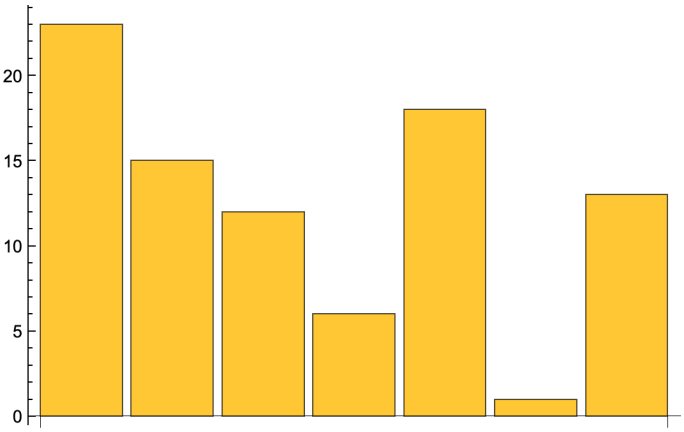
Out[6]= 33

In[7]:=
```
ToUpperCase[Alphabet["Greek"]]
```

Out[7]= {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[8]:=
```
BarChart[LetterNumber["wolfram"]]
```

Out[8]=



In[9]:=
```
Table[FromLetterNumber[RandomInteger[{1, 26}]], 1000]
```

Out[9]=
```
{i, b, f, e, r, h, u, o, z, r, g, b, u, a, j, a, d, q, j, r, u, l, p, u, x, r, y, i, h, l, e,
 k, s, z, e, b, l, a, y, r, c, j, j, g, i, m, s, q, y, p, p, f, g, a, f, h, h, s, a, s,
 y, x, o, w, l, o, x, h, z, b, s, t, c, q, q, n, b, t, a, k, r, t, f, g, q, q, w, p, o,
 m, o, s, a, b, d, b, q, x, l, t, z, e, v, c, y, n, t, f, c, b, u, o, w, r, w, q, n, t,
 z, z, n, b, d, d, v, w, z, r, r, n, d, n, q, v, b, k, h, f, f, t, f, c, i, g, m, l, r,
 h, y, k, u, i, m, c, t, q, v, c, a, k, p, h, q, h, h, z, t, q, h, p, y, n, x, o, z, d,
 y, j, l, a, y, u, z, q, i, i, m, p, i, s, k, r, w, r, u, w, v, o, m, u, g, x, x, z, n,
 r, e, l, i, p, u, z, m, m, n, b, e, w, e, v, o, k, d, o, r, a, e, d, f, h, t, p, p, f,
 a, g, l, v, y, z, p, d, j, i, f, u, a, q, z, m, y, z, c, i, g, w, p, s, n, a, c, x, d,
 t, g, n, n, g, i, d, v, f, c, h, y, j, k, e, x, y, j, n, t, e, b, q, o, o, g, u, d, w,
 q, g, p, e, r, v, d, d, w, w, b, x, t, p, h, u, f, k, l, x, q, c, n, l, p, c, i, b, m,
 e, w, l, j, w, m, u, r, m, p, v, u, q, o, c, u, x, k, g, e, a, b, z, n, x, y, c, x, s,
 k, a, k, t, t, s, i, m, f, u, x, k, n, u, p, d, t, c, c, f, r, g, m, y, b, e, m, x,
 v, t, q, s, m, t, a, r, g, u, w, p, i, b, o, c, v, h, d, c, p, r, j, i, t, c, a, h, j,
 f, t, n, r, i, f, b, g, d, u, i, n, g, j, k, j, w, f, f, l, k, r, v, j, r, n, l, q, p,
 m, v, i, p, y, k, j, m, w, i, z, n, w, r, g, r, g, k, y, l, x, a, q, y, n, q, z, x, l,
 f, q, o, w, t, v, i, s, t, p, c, u, m, m, h, j, c, q, x, x, m, y, i, t, r, a, r, k, g,
 y, o, g, z, u, r, g, m, f, a, z, j, h, i, s, f, m, m, x, z, m, d, x, m, z, p, o, c, m,
 y, j, s, z, e, m, u, o, n, e, x, y, l, v, j, t, o, l, s, y, a, j, d, p, d, x, e, i,
 n, b, d, d, o, r, s, s, v, q, i, j, g, l, g, v, m, p, v, w, k, l, t, w, x, x, a, b, b,
 w, m, j, b, k, k, u, e, a, j, i, l, f, k, k, u, n, h, b, d, z, l, n, d, d, u, m, e,
 u, z, q, n, r, j, d, g, n, h, m, q, z, u, n, d, r, h, j, u, o, h, t, z, o, b, w, k,
 r, u, z, r, i, j, k, f, n, m, r, t, n, c, c, k, f, z, v, v, y, w, j, x, b, p, p, w,
 p, q, u, i, n, s, r, j, t, z, b, v, g, k, u, i, a, h, o, c, k, h, j, u, i, g, x, b,
 c, j, w, i, i, d, v, b, p, q, t, x, d, t, x, c, t, v, z, u, i, h, w, l, k, n, m, t,
 c, r, v, b, r, n, n, j, z, m, j, s, r, q, s, y, j, r, b, y, m, x, w, h, f, i, f, c,
 c, d, y, d, q, n, n, p, b, g, j, q, m, q, x, a, h, f, k, a, s, p, l, f, n, f, j, t,
 c, m, s, c, t, v, c, t, f, g, h, e, y, q, i, v, h, k, v, k, u, g, d, c, q, x, b, n,
 u, u, r, p, j, m, y, p, r, m, p, m, p, h, n, h, t, l, p, t, b, m, b, p, z, q, u, b,
 c, d, l, m, s, q, x, t, g, n, n, o, f, k, s, p, x, l, s, b, h, n, u, p, y, h, n, l,
 r, a, s, d, i, i, k, r, g, j, n, b, w, u, v, q, v, d, r, j, s, a, n, k, g, m, h, q,
 x, n, j, f, m, c, v, g, n, i, x, y, c, r, b, j, j, l, j, d, y, x, v, u, w, f, z, h,
 n, o, q, c, v, t, q, j, t, d, y, q, k, u, w, i, d, l, g, b, v, s, y, i, p, z, s, l,
 x, a, w, k, z, w, y, d, o, i, t, q, x, y, a, a, k, i, e, k, l, u, y, s, p, h, e, r,
 q, l, v, n, a, i, u, z, m, i, i, a, d, i, l, q, d, c, h, b, a, z, q, y, p, p, w, n}
```

In[10]:=
```
Table[StringJoin[Table[FromLetterNumber[RandomInteger[{1, 26}]], 5]], 100]
```

Out[10]=
```
{qmxgx, exgyn, ofpsx, sbcba, hsowx, ihdiw, xyfgw, lvpdv, saser, avbcv, njsfu, ldtvs,
 zdboy, wivlc, bnlxs, lmfro, wxrad, mybkc, vdwnb, wosec, pqawe, nfjcs, ynxgi,
 cqawk, qjkaf, fbkzj, mahji, jjkdx, oxxur, tfuth, wpmrf, othmo, xffiq, hqfub,
 sskof, phnck, duzrd, puqon, vddri, rpegt, vjmpx, netga, dstqb, vmqse, hkczd,
 xjpqs, uweyt, hqdse, xajyw, adcjs, wqbbj, ccpml, ffjvz, srrjg, eqvmf, lhpdh,
 qlivc, glnyf, udzhk, noacx, dlvtb, vwavz, ggnol, rqnlk, rfcvx, oqwbz, uiwph,
 ykeot, sevif, mxhby, ybywl, yyuqy, gzwfj, xdgnx, mowfz, gznmn, twbqz, xxqbp,
 gygzd, gyoyr, efcpb, qommt, fbkgk, vkynl, wwlpe, kohsl, zlyko, utrcj, ftyff,
 amnsd, vvdjf, tdidq, fzlqc, gmlml, ugzxw, oproi, cowqm, qzymf, twete, jcsaw}
```

In[11]:=
```
Transliterate["wolfram", "Greek"]
```

Out[11]=
βολφραμ

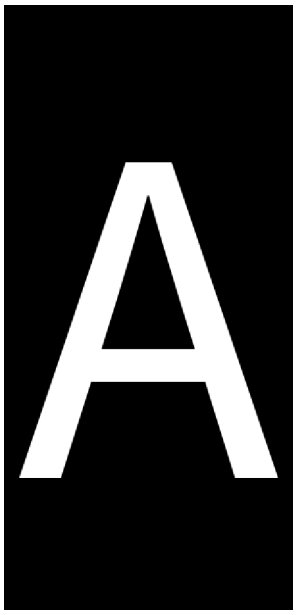
In[12]:=
```
StringJoin[Table["🐗🐑", 10]]
```

Out[12]=
🐗🐑🐗🐑🐗🐑🐗🐑🐗🐑🐗🐑🐗🐑🐗🐑🐗🐑🐗🐑

In[13]:=
```
Transliterate[Alphabet["Arabic"], "English"]
```

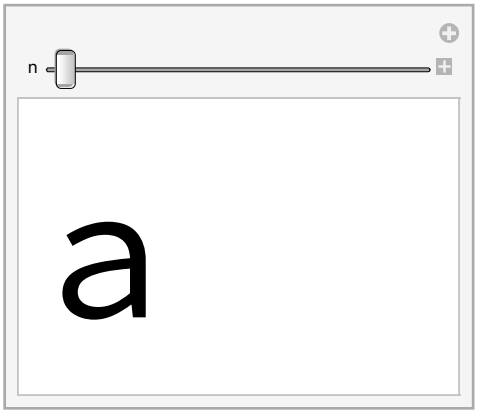
Out[13]=
```
{ạ, b, t, tẖ, j, ḥ, kẖ, d, dẖ, r, z, s, sẖ, ṣ, ḍ, ṭ, ẓ, ʿ, gẖ, f, q, k, l, m, n, h, w, y}
```

In[14]:=
```
ColorNegate[Rasterize[Style["A", 200, Black]]]
```

Out[14]=


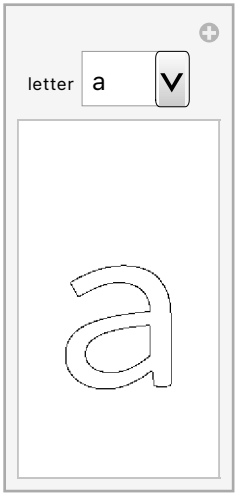
In[15]:=
```
Manipulate[Style[FromLetterNumber[n], 100], {n, 1, 26, 1}]
```

Out[15]=



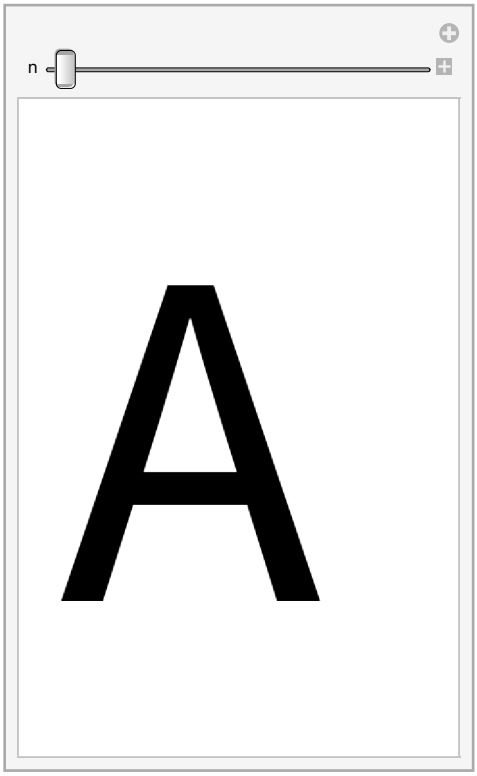
In[16]:=
```
Manipulate[ColorNegate[EdgeDetect[Rasterize[Style[letter, 100]]]],
 {letter, Alphabet[]}]
```

Out[16]=



In[17]:=
```
Manipulate[Blur[Rasterize[Style[A, 200]], n], {n, 0, 50}]
```

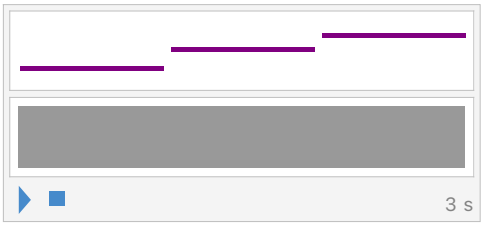
Out[17]=



Section 12

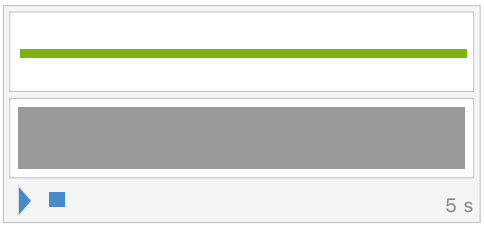
In[18]:=
```
Sound[{SoundNote[0], SoundNote[4], SoundNote[7]}]
```

Out[18]=



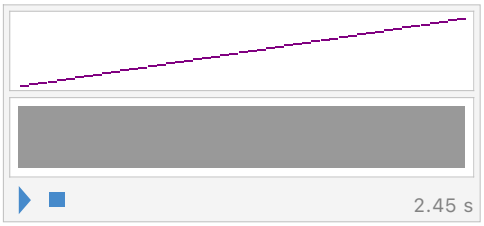
In[19]:=
```
Sound[SoundNote["A", 5, "Cello"]]
```

Out[19]=



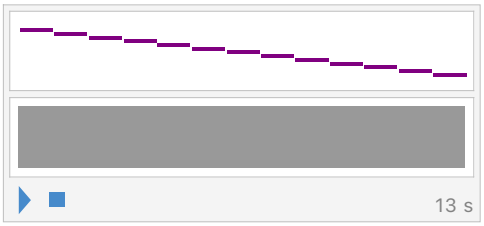
In[20]:=
```
Sound[Table[SoundNote[n, 0.05], {n, 0, 48, 1}]]
```

Out[20]=



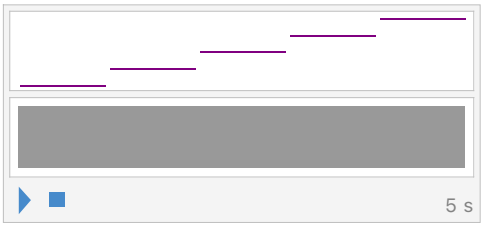
In[21]:=
```
Sound[Reverse[Table[SoundNote[n], {n, 0, 12, 1}]]]
```

Out[21]=



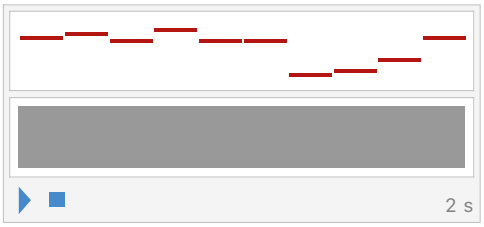
In[22]:=
```
Sound[Table[SoundNote[n], {n, 0, 48, 12}]]
```

Out[22]=



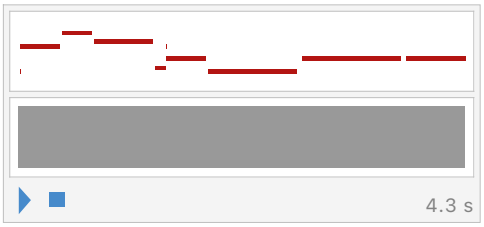
In[23]:=
```
Sound[Table[SoundNote[RandomInteger[12], 0.2, "Trumpet"], 10]]
```

Out[23]=



In[24]:=
```
Sound[Table[SoundNote[RandomInteger[12], RandomInteger[10] / 10, "Trumpet"], 10]]
```

Out[24]=

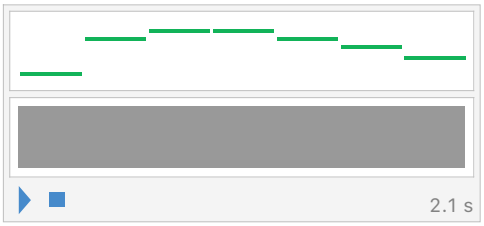


In[25]:=
```
Sound[Table[SoundNote[n, 0.1], {n, IntegerDigits[2^31]}]]
```

Out[25]=

In[26]:=
```
Sound[Table[SoundNote[n, 0.3, "Guitar"], {n, Characters["CABBAGE"]}]]
```

Out[26]=



In[27]:=
```
Sound[Table[SoundNote[n, 0.1], {n, LetterNumber[Characters["wolfram"]]}]]
```

Out[27]=

Section 13

In[28]:=
```
Grid[Table[p*n, {n, 1, 12, 1}, {p, 1, 12, 1}]]
```

Out[28]=

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

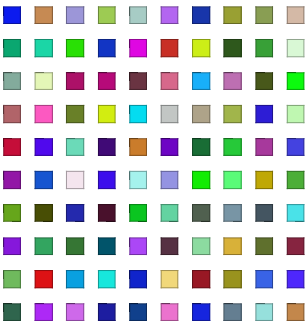
In[29]:=
```
Grid[Table[RomanNumeral[p * n], {n, 1, 5, 1}, {p, 1, 5, 1}]]
```

Out[29]=

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[30]:=
```
Grid[Table[RandomColor[], 10, 10]]
```

Out[30]=



In[31]:=
```
Grid[Table[Style[RandomInteger[10], RandomColor[]], 10, 10]]
```

Out[31]=

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

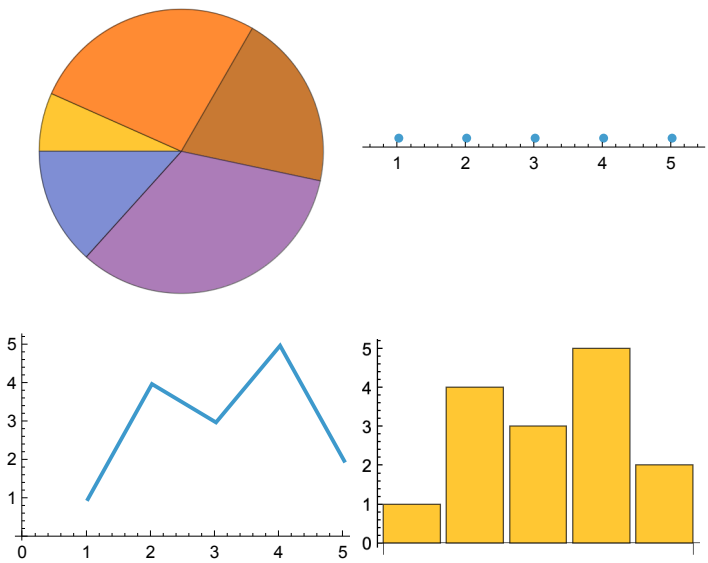
In[32]:=
```
Grid[Table[StringJoin[a, b], {a, Alphabet[]}, {b, Alphabet[]}]]
```

Out[32]=

```
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[33]:=
```
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[33]=

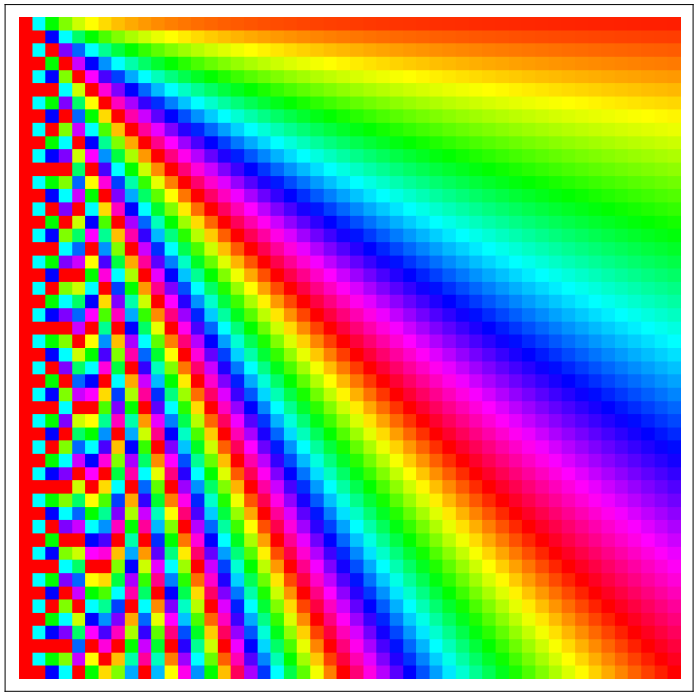


I guess you skipped 13.7. My solution to it was

```
ArrayPlot[
   Table[Hue[i j],
   {i, Range[0, 1, 0.05]},
   {j, Range[0, 1, 0.05]}
]
```

In[34]:=
```
ArrayPlot[Table[Hue[x / y], {x, 1, 50, 1}, {y, 1, 50, 1}]]
```

Out[34]=



This one was an interesting suprise.

In[35]:=
```
ArrayPlot[Table[Length[Characters[RomanNumeral[x * y]]], {x, 1, 100}, {y, 1, 100}]]
```

Out[35]=