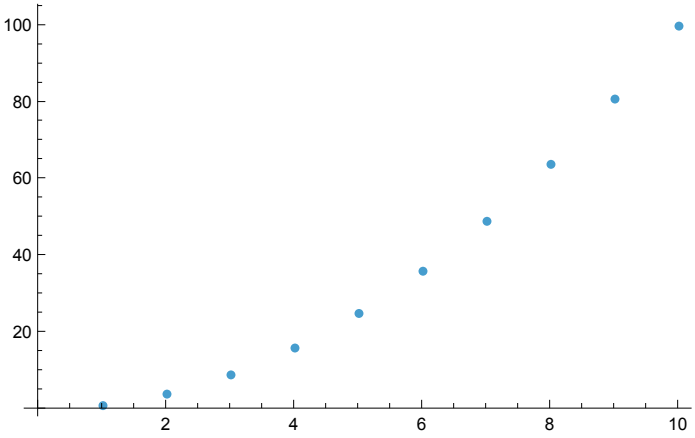
Hexi—PS3—2025-01-21

Exercises from EIWL3 Section 5

In[390]:=
```
Reverse[Range[10]^2]
```
Out[390]=
```
{100, 81, 64, 49, 36, 25, 16, 9, 4, 1}
```

In[391]:=
```
Total[Range[10]^2]
```
Out[391]=
```
385
```

In[392]:=
```
ListPlot[Range[10]^2]
```
Out[392]=



In[393]:=
```
Sort[Join[Range[4], Range[4]]]
```
Out[393]=
```
{1, 1, 2, 2, 3, 3, 4, 4}
```

In[394]:=
```
Range[10, 20]
```
Out[394]=
```
{10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

In[395]:=
```
Sort[Join[Range[5]^2, Range[5]^3]]
```
Out[395]=
```
{1, 1, 4, 8, 9, 16, 25, 27, 64, 125}
```

In[396]:=
```
IntegerLength[2^128]
```
Out[396]=
```
39
```

In[397]:=
```
First[IntegerDigits[2^32]]
```
Out[397]=
```
4
```

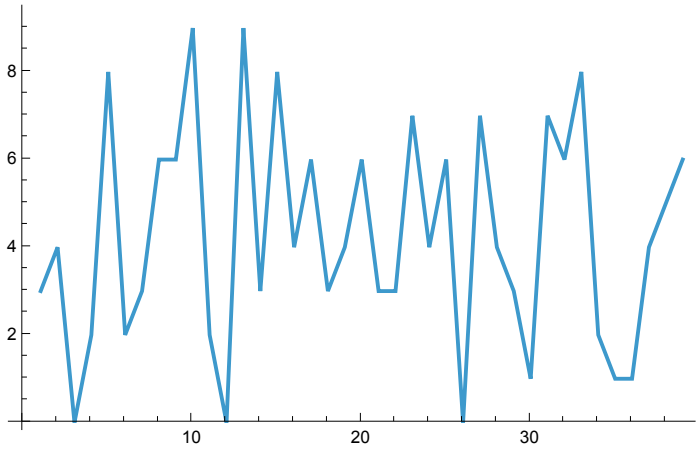
In[398]:=
```
Take[IntegerDigits[2^100], 10]
```
Out[398]=
```
{1, 2, 6, 7, 6, 5, 0, 6, 0, 0}
```

In[399]:=
```
Max[IntegerDigits[2^20]]
```
Out[399]=
```
8
```

In[400]:=
```
Count[IntegerDigits[2^1000], 0]
```
Out[400]=
```
28
```

In[401]:=
```
Part[Sort[IntegerDigits[2^20]], 2]
```
Out[401]=
```
1
```

In[402]:=
```
ListLinePlot[IntegerDigits[2^128]]
```
Out[402]=



In[403]:=
```
Drop[Take[Range[100], 20], 10]
```
Out[403]=
```
{11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

In[404]:=
```
3 * Range[10]
```
Out[404]=
```
{3, 6, 9, 12, 15, 18, 21, 24, 27, 30}
```

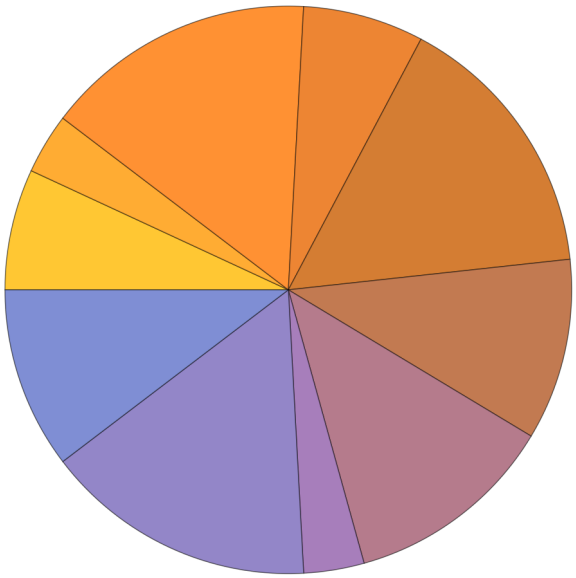
In[405]:=
```
Range[10] * Range[10]
```
Out[405]=
```
{1, 4, 9, 16, 25, 36, 49, 64, 81, 100}
```

In[406]:=
```
Last[IntegerDigits[2^37]]
```
Out[406]=
```
2
```

In[407]:=
```
Part[Reverse[IntegerDigits[2^32]], 2]
```
Out[407]=
```
9
```

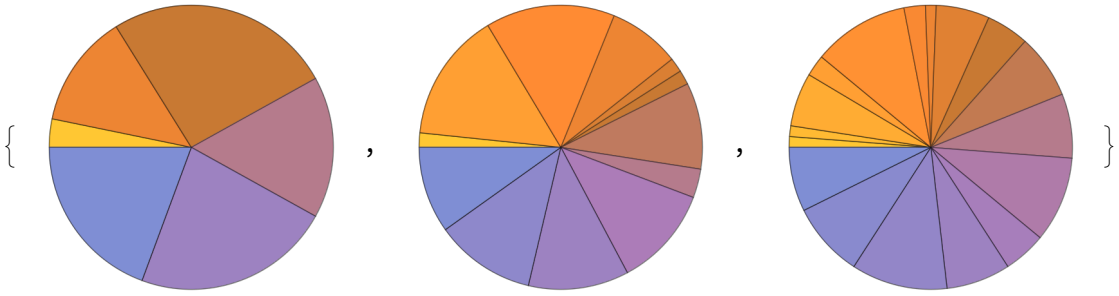
In[408]:=
```
Total[IntegerDigits[3^126]]
```
Out[408]=
```
234
```

In[409]:=
```
PieChart[IntegerDigits[2^32]]
```
Out[409]=

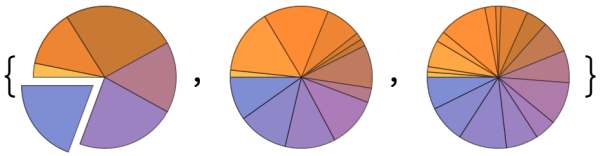


In[410]:=
```
{PieChart[IntegerDigits[2^20]],
 PieChart[IntegerDigits[2^40]], PieChart[IntegerDigits[2^60]]}
```

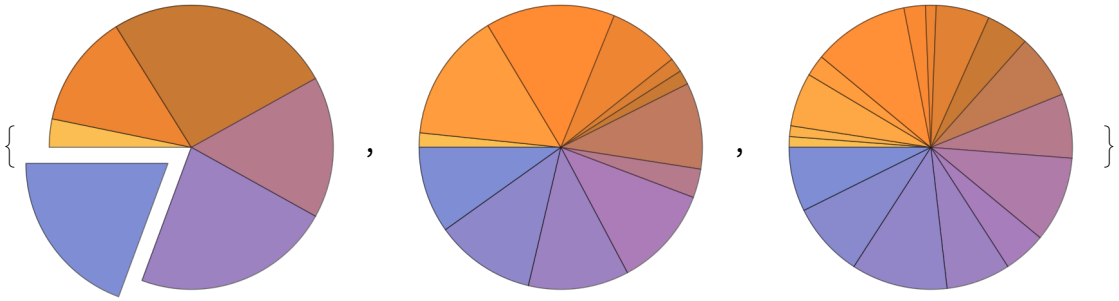
Out[410]=



In[411]:=



Out[411]=



Exercises from EIWL3 Section 6

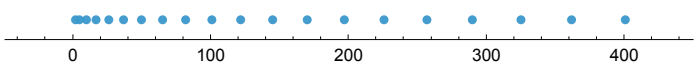
In[412]:=
```
Table[1000, 5]
```

Out[412]=
```
{1000, 1000, 1000, 1000, 1000}
```

In[413]:=
```
Table[n^3, {n, 10, 20}]
```

Out[413]=
```
{1000, 1331, 1728, 2197, 2744, 3375, 4096, 4913, 5832, 6859, 8000}
```

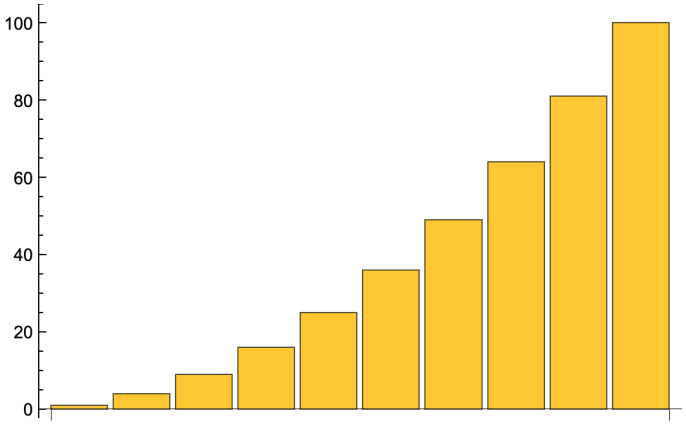
In[414]:=
```
NumberLinePlot[Table[n^2, {n, 20}]]
```
Out[414]=



In[415]:=
```
Range[2, 20, 2]
```
Out[415]=
```
{2, 4, 6, 8, 10, 12, 14, 16, 18, 20}
```

In[416]:=
```
Table[n, {n, 10}]
```
Out[416]=
```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

In[417]:=
```
BarChart[Table[n^2, {n, 10}]]
```
Out[417]=



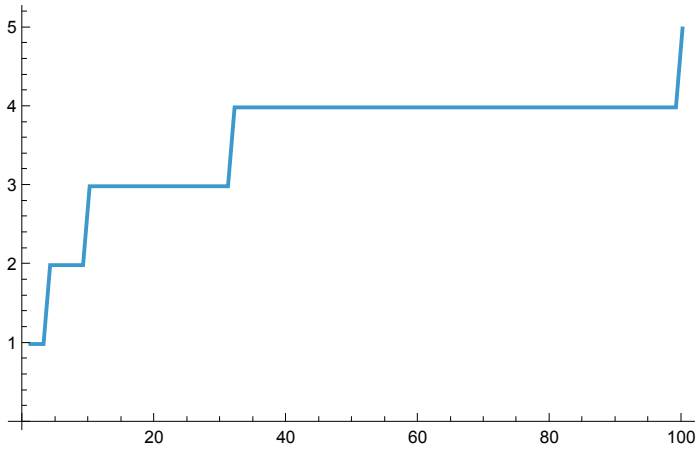
In[418]:=

In[419]:=

In[420]:=
```
IntegerDigits[Table[n^2, {n, 10}]]
```
Out[420]=
```
{{1}, {4}, {9}, {1, 6}, {2, 5}, {3, 6}, {4, 9}, {6, 4}, {8, 1}, {1, 0, 0}}
```

In[421]:=
```
ListLinePlot[Table[Length[IntegerDigits[n^2]], {n, 100}]]
```

Out[421]=



In[422]:=
```
Table[First[IntegerDigits[n^2]], {n, 20}]
```

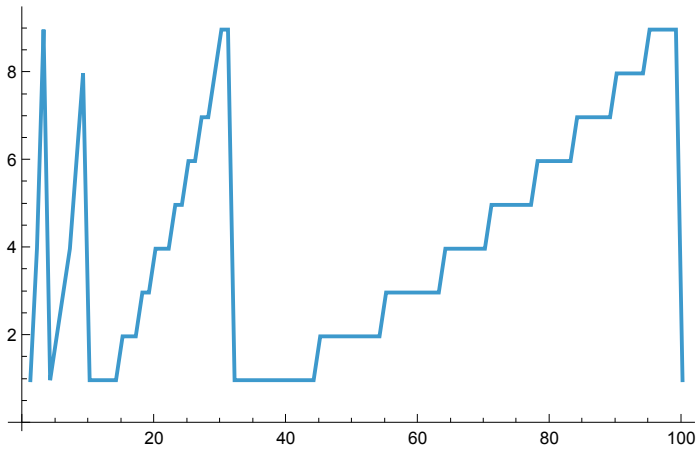
Out[422]=
```
{1, 4, 9, 1, 2, 3, 4, 6, 8, 1, 1, 1, 1, 1, 2, 2, 2, 3, 3, 4}
```

In[423]:=
```
{1, 4, 9, 1, 2, 3, 4, 6, 8, 1, 1, 1, 1, 1, 2, 2, 2, 3, 3, 4}
```

Out[423]=
```
{1, 4, 9, 1, 2, 3, 4, 6, 8, 1, 1, 1, 1, 1, 2, 2, 2, 3, 3, 4}
```

In[424]:=
```
ListLinePlot[Table[First[IntegerDigits[n^2]], {n, 100}]]
```

Out[424]=



ListLinePlot: n^2 is not a list of numbers or pairs of numbers.

Part: The expression n^2 cannot be used as a part specification.

In[425]:=
```
Table[n^3 - n^2, {n, 10}]
```

Out[425]=
```
{0, 4, 18, 48, 100, 180, 294, 448, 648, 900}
```

In[426]:=
```
Table[n, {n, 1, 100, 2}]
```
Out[426]=
```
{1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31,
 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, 63, 65,
 67, 69, 71, 73, 75, 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97, 99}
```

In[427]:=
```
Table[n^2, {n, 2, 100, 2}]
```
Out[427]=
```
{4, 16, 36, 64, 100, 144, 196, 256, 324, 400, 484, 576, 676, 784,
 900, 1024, 1156, 1296, 1444, 1600, 1764, 1936, 2116, 2304, 2500, 2704,
 2916, 3136, 3364, 3600, 3844, 4096, 4356, 4624, 4900, 5184, 5476, 5776,
 6084, 6400, 6724, 7056, 7396, 7744, 8100, 8464, 8836, 9216, 9604, 10 000}
```

In[428]:=
```
Range[-3, 2]
```
Out[428]=
```
{-3, -2, -1, 0, 1, 2}
```

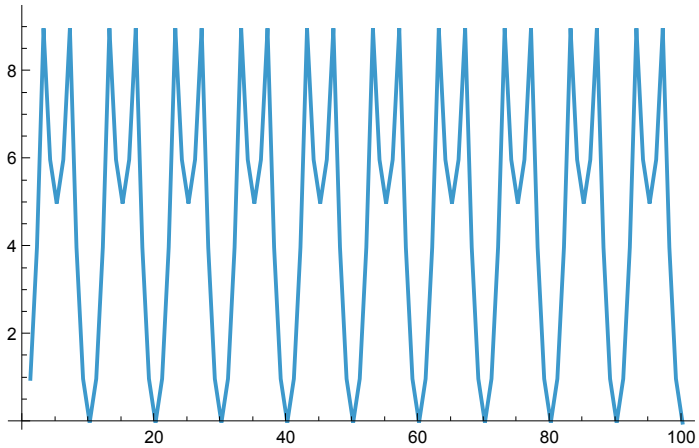
In[429]:=

In[430]:=
```
Table[Column[{i, i^2, i^3}], {i, 1, 20}]
```
Out[430]=
```
 1   2   3    4    5    6    7    8    9    10
{1 , 4 , 9  , 16 , 25 , 36 , 49 , 64 , 81 , 100 ,
 1   8   27   64   125  216  343  512  729  1000

 11    12    13    14    15    16    17    18    19    20
 121 , 144 , 169 , 196 , 225 , 256 , 289 , 324 , 361 , 400 }
 1331  1728  2197  2744  3375  4096  4913  5832  6859  8000
```

In[431]:=

In[432]:=
```
ListLinePlot[Table[Last[IntegerDigits[n^2]], {n, 100}]]
```
Out[432]=

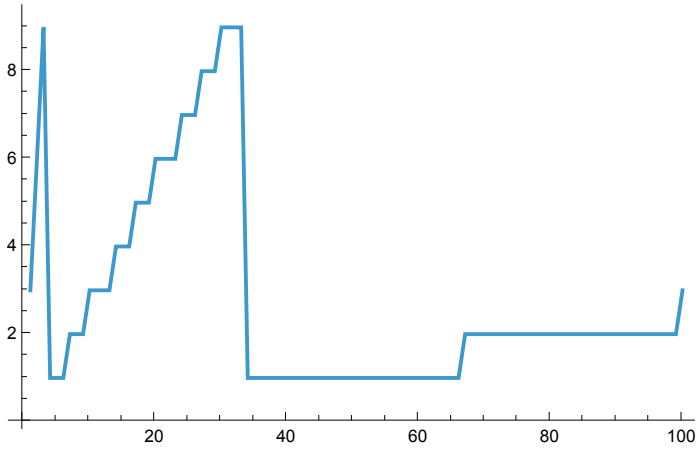


In[433]:=

In[434]:=

```
ListLinePlot[Table[First[IntegerDigits[3 * n]], {n, 100}]]
```

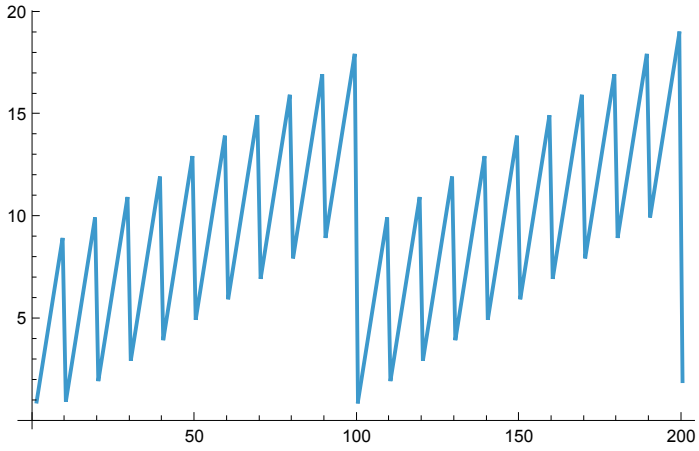
Out[434]=



In[435]:=

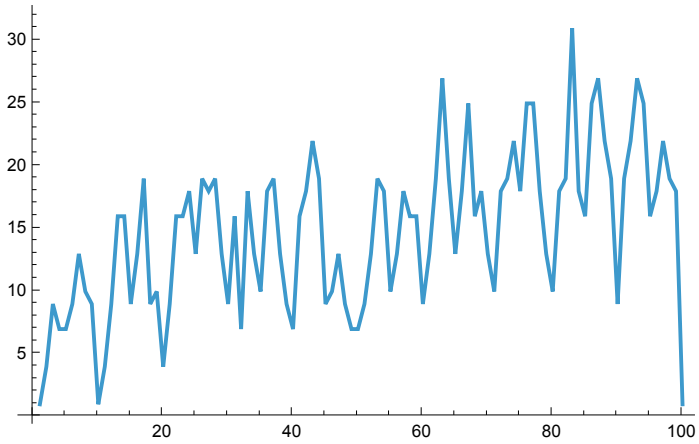
```
ListLinePlot[Table[Total[IntegerDigits[n]], {n, 200}]]
```

Out[435]=



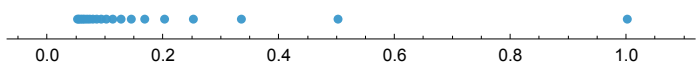
In[436]:=
```
ListLinePlot[Table[Total[IntegerDigits[n^2]], {n, 100}]]
```

Out[436]=



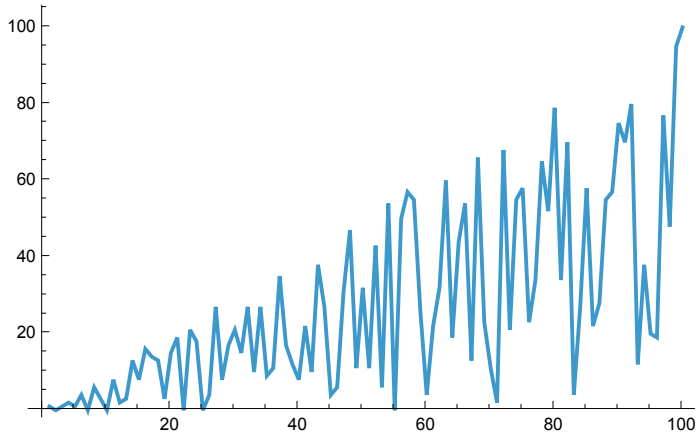
In[437]:=
```
NumberLinePlot[Table[1 / n, {n, 20}]]
```

Out[437]=



In[438]:=
```
ListLinePlot[Table[RandomInteger[n], {n, 100}]]
```

Out[438]=



Exercises from EIWL3 Section 7

In[439]:=
```
{Red, Yellow, Green}
```

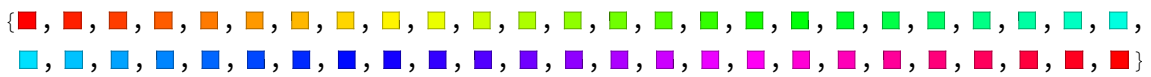
Out[439]=

{■, ■, ■}

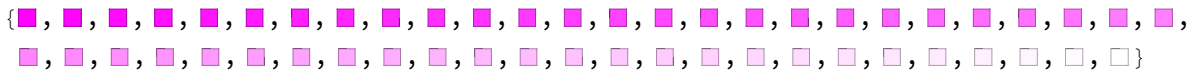
In[440]:=
```
Column[{Red, Yellow, Green}]
```
Out[440]=

In[441]:=
```
ColorNegate[Orange]
```
Out[441]=

In[442]:=
```
Table[Hue[x], {x, 0, 1, 0.02}]
```
Out[442]=

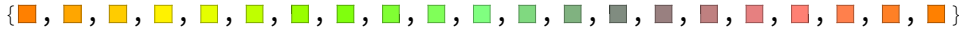


In[443]:=
```
Table[RGBColor[1, G, 1], {G, 0, 1, 0.02}]
```
Out[443]=



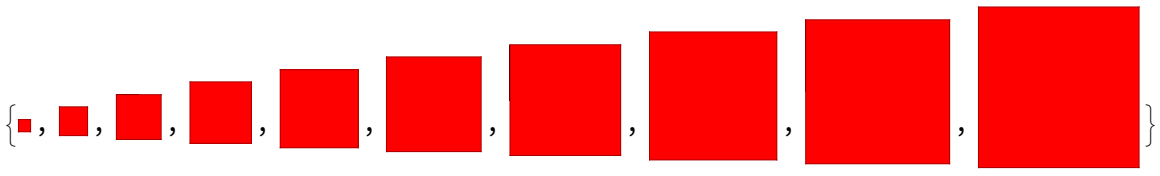
In[444]:=
```
Blend[{Pink, Yellow}]
```
Out[444]=

In[445]:=
```
Table[Blend[{Yellow, Hue[x]}], {x, 0, 1, 0.05}]
```
Out[445]=



In[446]:=
```
Style[Purple, 100]
```
Out[446]=

In[447]:=
```
Table[Style[Red, x], {x, 10, 100, 10}]
```
Out[447]=



In[448]:=
```
Style[999, 100, Red]
```
Out[448]=

999

In[449]:=
```
Table[Style[x^2, x], {x, 10}]
```
Out[449]=

{1, 4, 9, 16, 25, 36, 49, 64, 81, 100}

In[450]:=

In[451]:=
```
colors = {Red, Yellow, Green}
```
Out[451]=

{■, ■, ■}

In[452]:=
```
Part[colors, {1, 3, 2, 3}]
```
Out[452]=

{■, ■, ■, ■}

In[453]:=
```
Part[colors, RandomInteger[{1, 3}, 100]]
```
Out[453]=

{■, ■,
■, ■,
■, ■,
■, ■}

In[454]:=
```
Table[Style[Part[IntegerDigits[2^1000], n],
  3 Part[IntegerDigits[2^1000], n]], {n, 50}]
```
Out[454]=

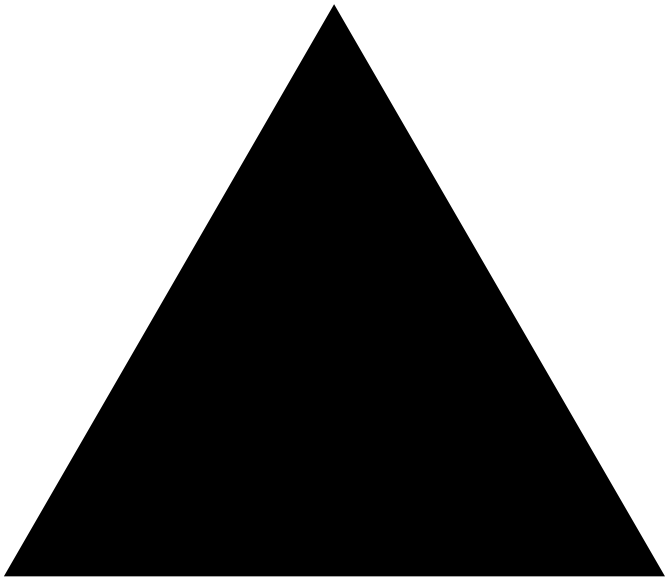
{1, , 7, 1, 5, , 8, 6, , 7, 1, 8, 6, 2, 6, 7, 3, 2, , 9, 4, 8, 4, 2, 5,
, 4, 9, , 6, , , , 1, 8, 1, , 5, 6, 1, 4, , 4, 8, 1, 1, 7, , 5, 5}

In[455]:=

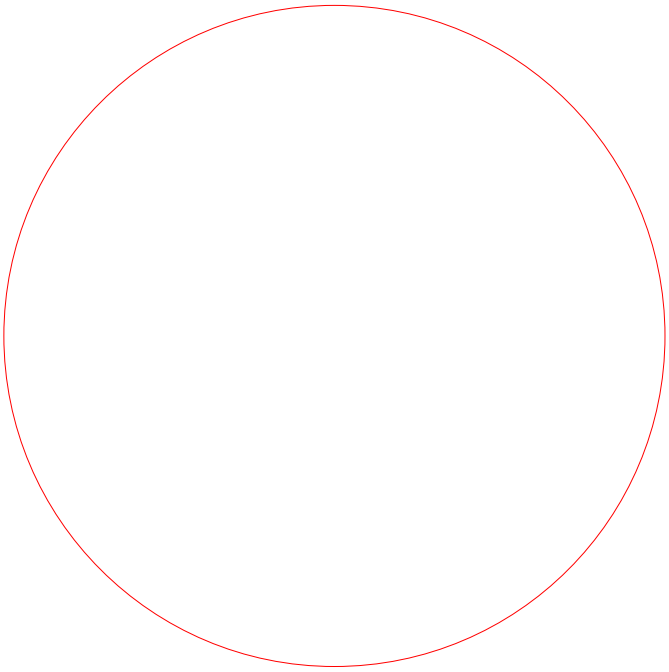
In[456]:=

Exercises from EIWL3 Section 8

In[457]:=
```
Graphics[RegularPolygon[3]]
```
Out[457]=



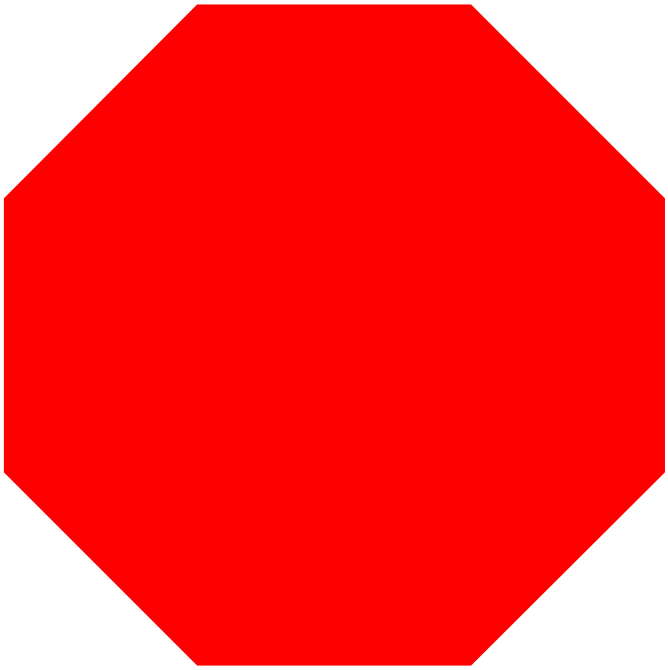
In[458]:=
```
Graphics[Style[Circle[], Red]]
```
Out[458]=



In[459]:=

```
Graphics[Style[RegularPolygon[8], Red]]
```

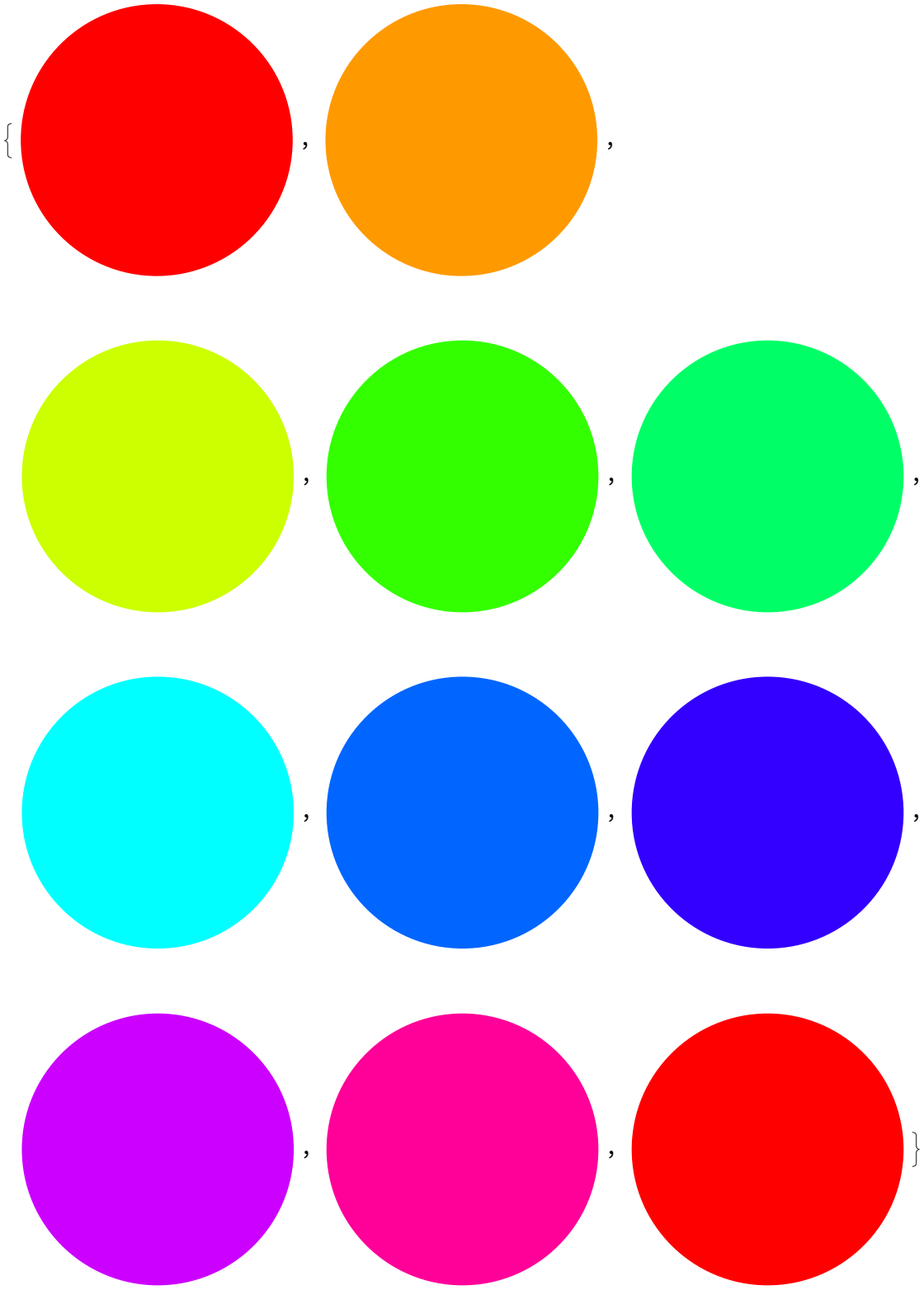
Out[459]=



In[460]:=

```
Table[Graphics[Style[Disk[], Hue[n]]], {n, 0, 1, 0.1}]
```

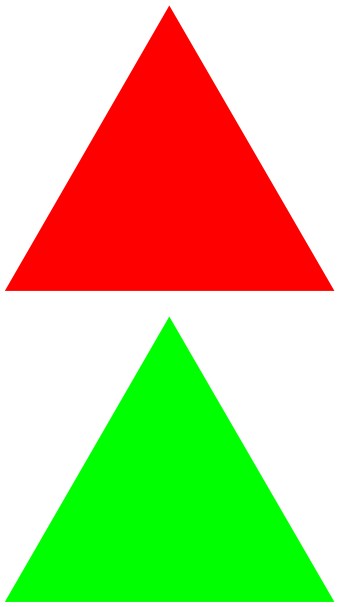
Out[460]=



In[461]:=

```
Column[{Graphics[Style[RegularPolygon[3], Red]],
  Graphics[Style[RegularPolygon[3], Green]]}]
```

Out[461]=

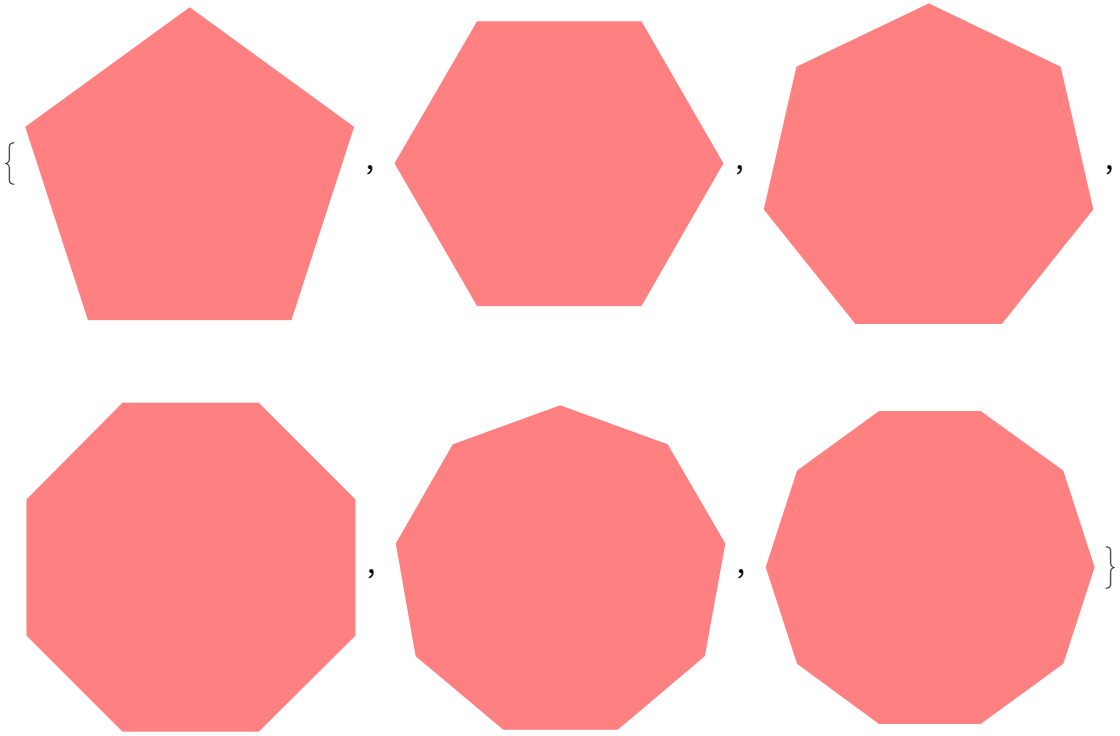


In[462]:=

In[463]:=

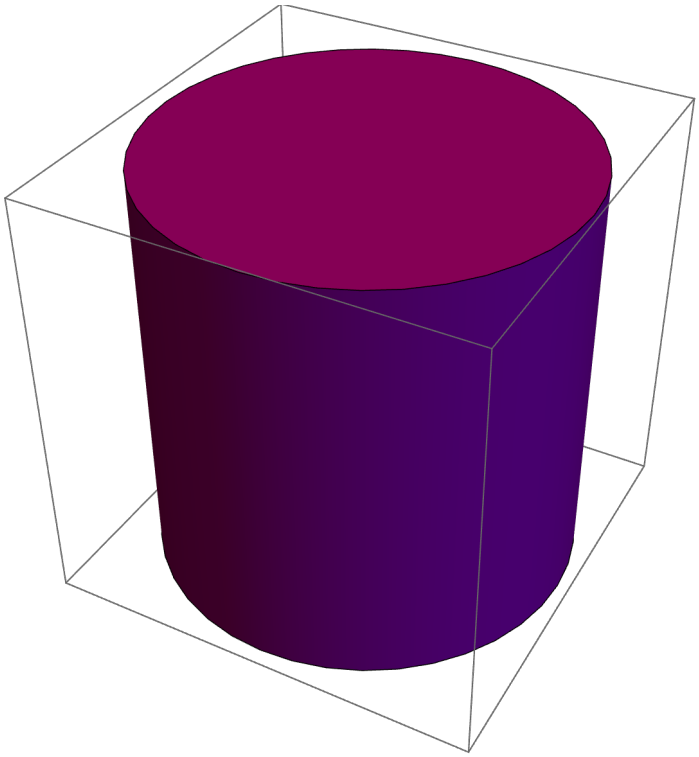
```
Table[Graphics[Style[RegularPolygon[n], Pink]], {n, 5, 10}]
```

Out[463]=



In[464]:=
```
Graphics3D[Style[Cylinder[], Purple]]
```

Out[464]=



In[465]:=
```
Graphics[Reverse[Table[Style[RegularPolygon[n], RandomColor[]], {n, 3, 8}]]]
```

Out[465]=