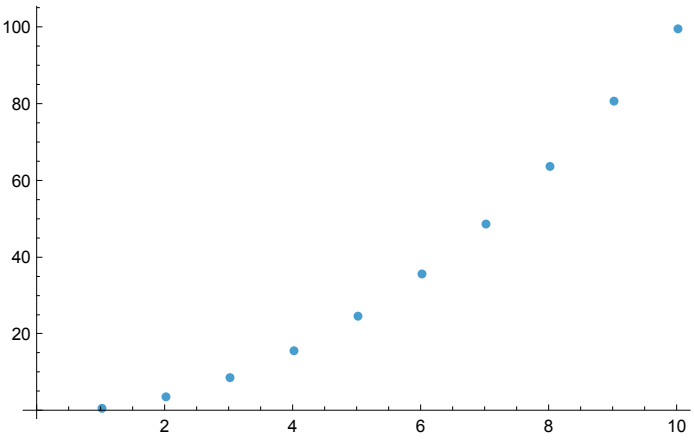
Hexi—PS2—2025-01-21

Exercises from EIWL3 Section 5

Nice. See comments on pp. 6 and 10.

10/10

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

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

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




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

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

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

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

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

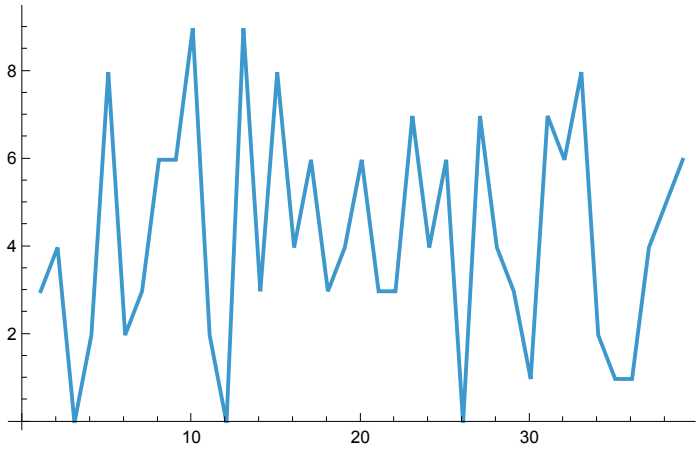
In[•]:=
```
Take[IntegerDigits[2^100], 10]
```
Out[•]=
```
{1, 2, 6, 7, 6, 5, 0, 6, 0, 0}
```

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

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

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

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

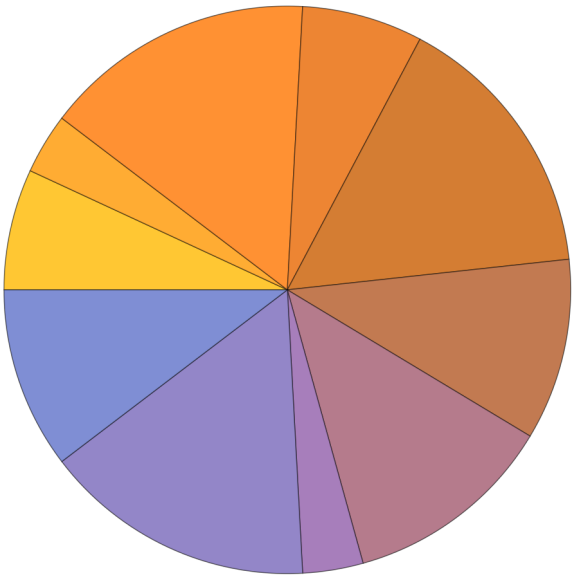


In[•]:=
```
Drop[Take[Range[100], 20], 10]
```
Out[•]=
```
{11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

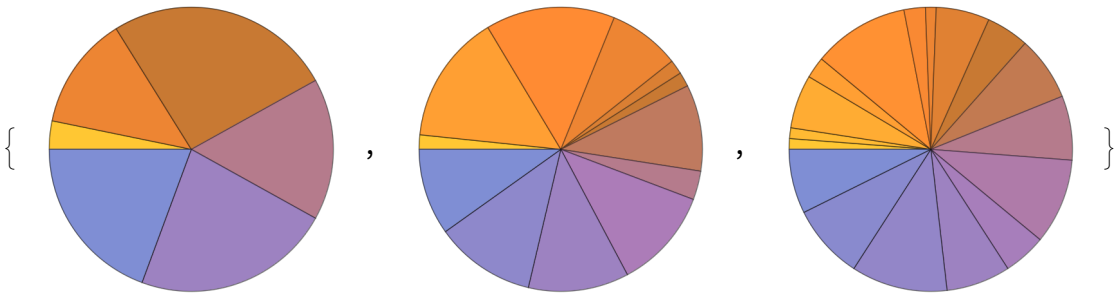
In[•]:=
```
3 * Range[10]
```
Out[•]=
```
{3, 6, 9, 12, 15, 18, 21, 24, 27, 30}
```

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

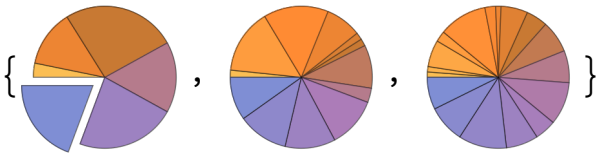
```
In[•]:= Last[IntegerDigits[2^37]]
Out[•]=
2

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

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

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



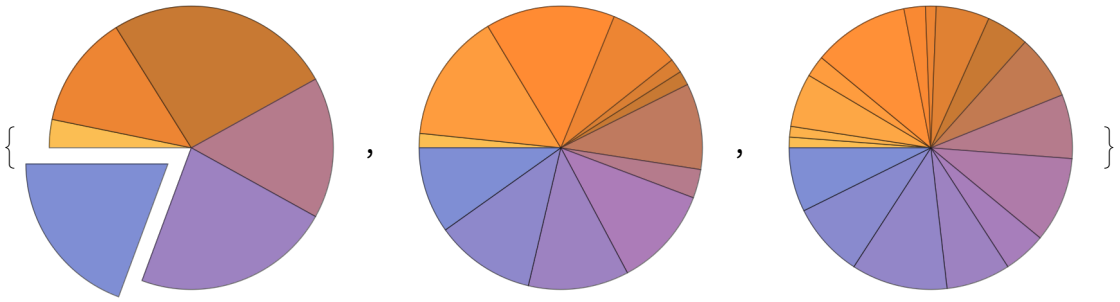
```
In[•]:= {PieChart[IntegerDigits[2^20]],
         PieChart[IntegerDigits[2^40]], PieChart[IntegerDigits[2^60]]}
Out[•]=
```



In[ ]:=



Out[ ]=

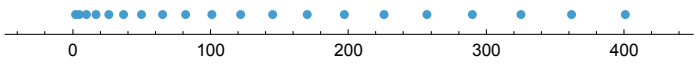


Exercises from EIWL3 Section 6

In[ ]:=
```
Table[1000, 5]
```
Out[ ]=
```
{1000, 1000, 1000, 1000, 1000}
```

In[ ]:=
```
Table[n^3, {n, 10, 20}]
```
Out[ ]=
```
{1000, 1331, 1728, 2197, 2744, 3375, 4096, 4913, 5832, 6859, 8000}
```

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

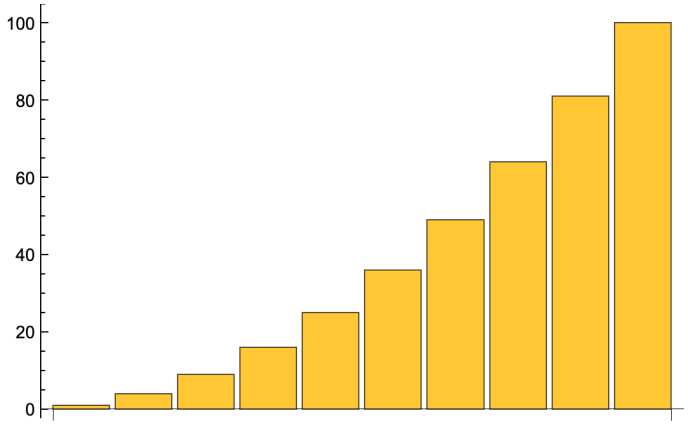


In[ ]:=
```
Range[2, 20, 2]
```
Out[ ]=
```
{2, 4, 6, 8, 10, 12, 14, 16, 18, 20}
```

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

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

Out[•]=



In[•]:=

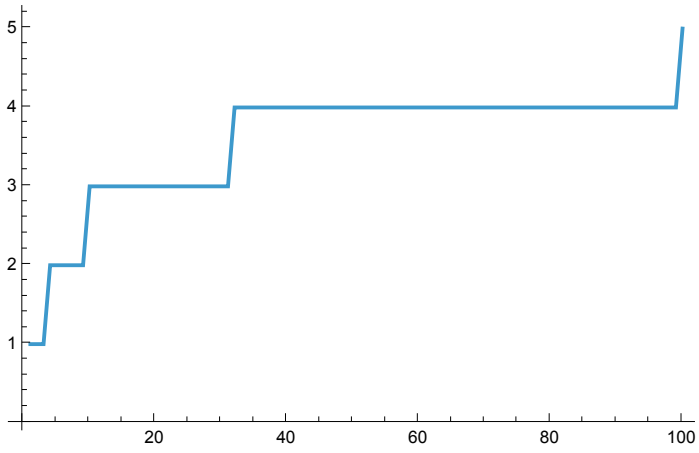
In[•]:=

In[•]:=
```
IntegerDigits[Table[n^2, {n, 10}]]
```

Out[•]=
```
{{1}, {4}, {9}, {1, 6}, {2, 5}, {3, 6}, {4, 9}, {6, 4}, {8, 1}, {1, 0, 0}}
```

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

Out[•]=



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

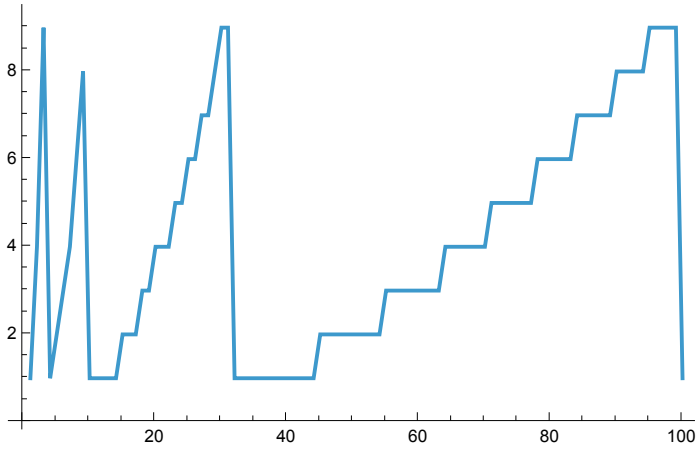
Out[•]=
```
{1, 4, 9, 1, 2, 3, 4, 6, 8, 1, 1, 1, 1, 1, 2, 2, 2, 3, 3, 4}
```

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

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

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

Out[•]=



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.

I guess you didn't re-execute the cell? I'm not sure where these errors are coming from. Your plot of the first 100 looks good. I only did the first 20.

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

Out[•]=

```
{0, 4, 18, 48, 100, 180, 294, 448, 648, 900}
```

```
In[•]:= Table[n, {n, 1, 100, 2}]
```

Out[•]=

```
{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[•]:= Table[n^2, {n, 2, 100, 2}]
```

Out[•]=

```
{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[•]:= Range[-3, 2]
```

Out[•]=

```
{-3, -2, -1, 0, 1, 2}
```

```
In[•]:=
```

```
In[•]:= Table[Column[{i, i^2, i^3}], {i, 1, 20}]
```

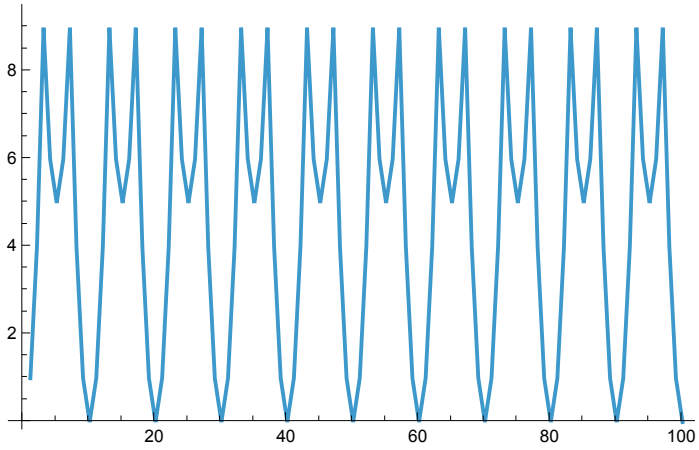
Out[•]=

```
 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[ ]:=

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

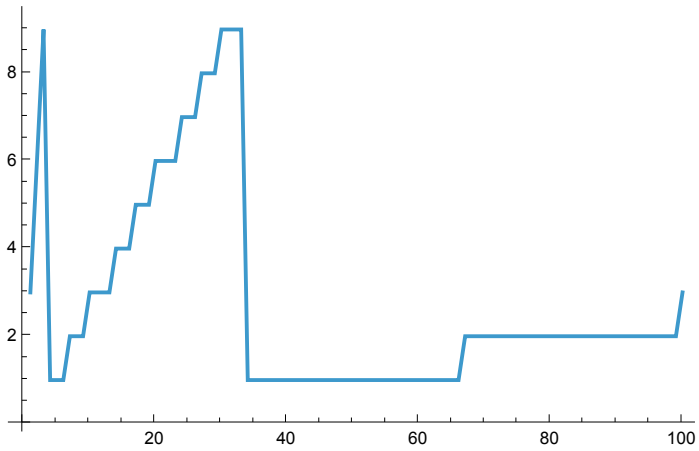
Out[ ]=



In[ ]:=

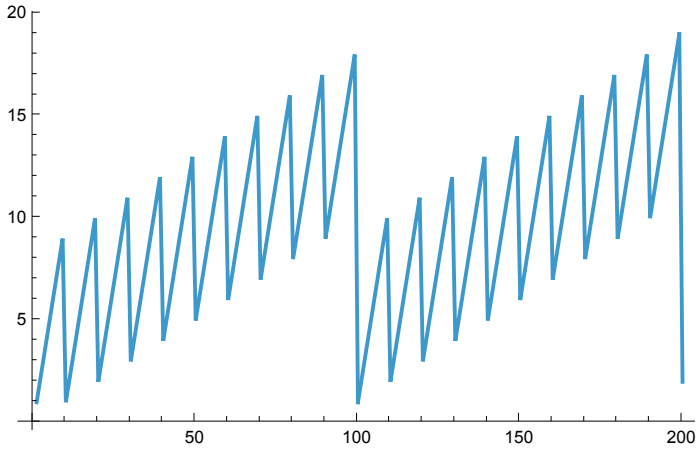
In[ ]:=
```
ListLinePlot[Table[First[IntegerDigits[3*n]], {n, 100}]]
```

Out[ ]=



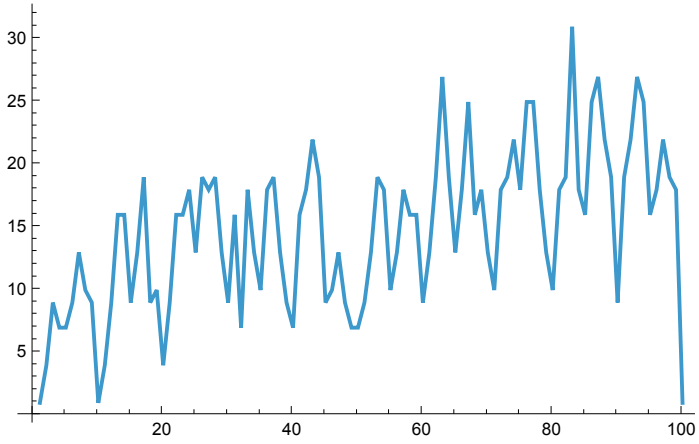
In[•]:=
```
ListLinePlot[Table[Total[IntegerDigits[n]], {n, 200}]]
```

Out[•]=



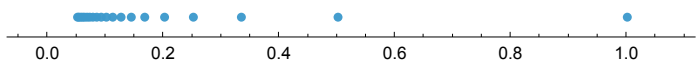
In[•]:=
```
ListLinePlot[Table[Total[IntegerDigits[n^2]], {n, 100}]]
```

Out[•]=

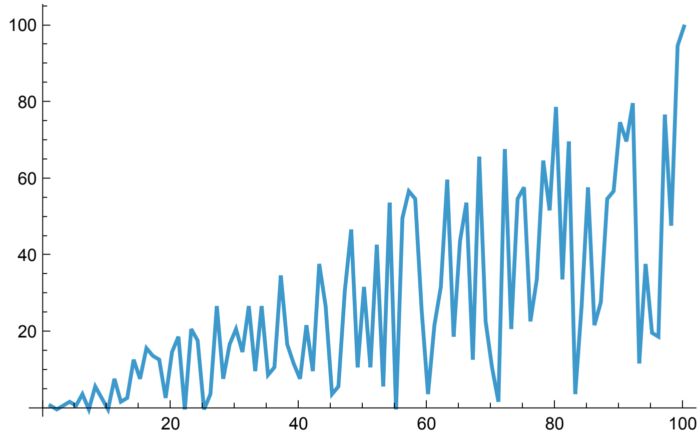


In[•]:=
```
NumberLinePlot[Table[1 / n, {n, 20}]]
```

Out[•]=



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



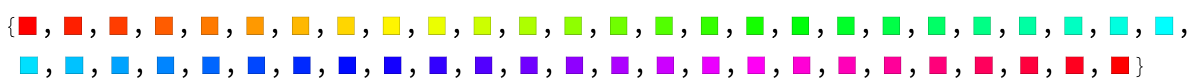
Exercises from EIWL3 Section 7

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

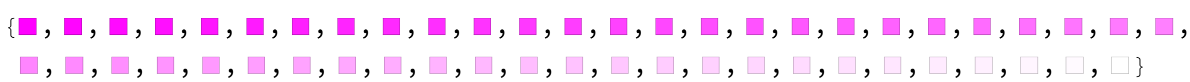
In[∘]:=
```
Column[{Red, Yellow, Green}]
```
Out[∘]=

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

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



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

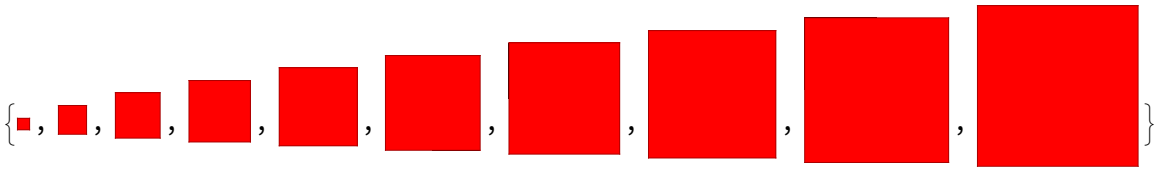


In[∘]:=
```
Blend[{Pink, Yellow}]
```
Out[∘]=

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

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

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



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

999

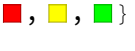
In[ ]:=
```
Table[Style[x^2, x], {x, 10}]
```
Out[ ]=

{, ·, ▫, 16, 25, 36, 49, 64, 81, 100}

Not quite what Wolfram meant but close enough.

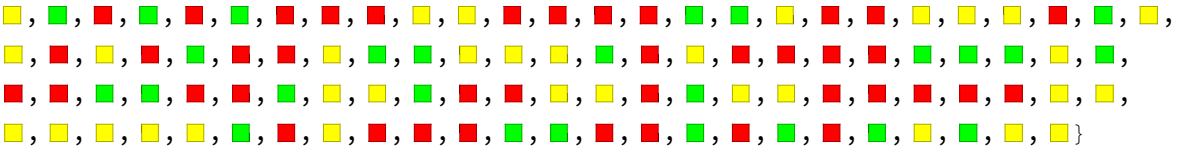
In[ ]:=

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



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

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



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

Out[•]=

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

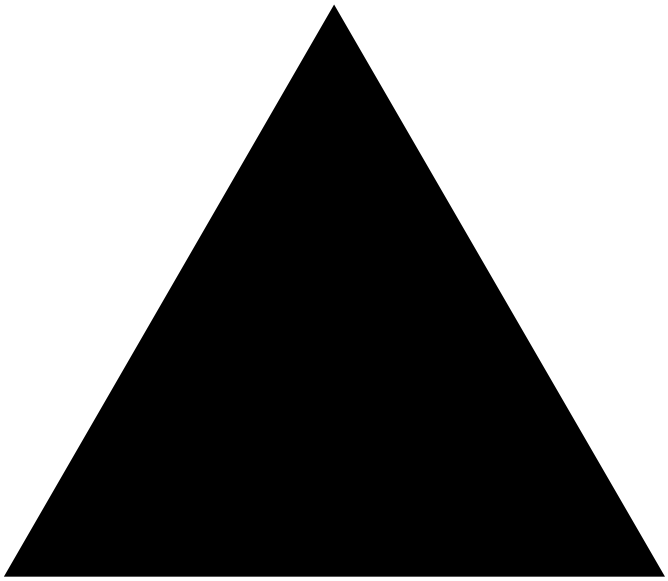
```
In[•]:=
```

```
In[•]:=
```

Exercises from EIWL3 Section 8

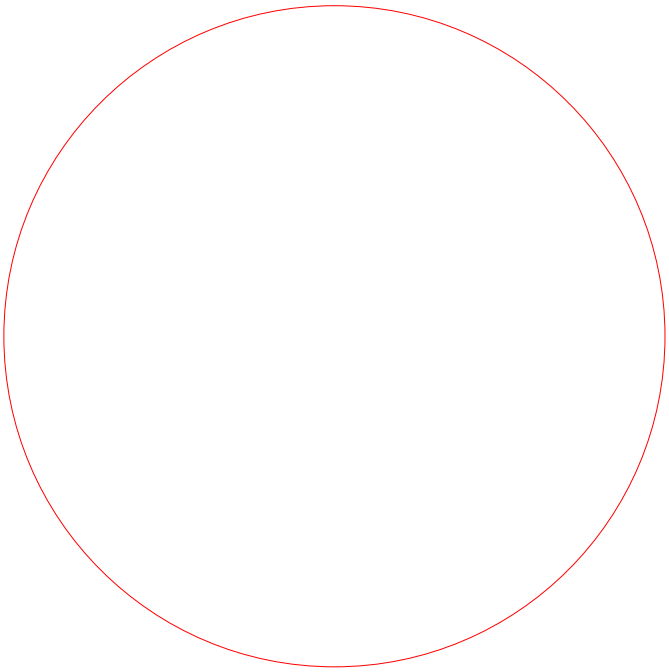
```
In[•]:= Graphics[RegularPolygon[3]]
```

Out[•]=



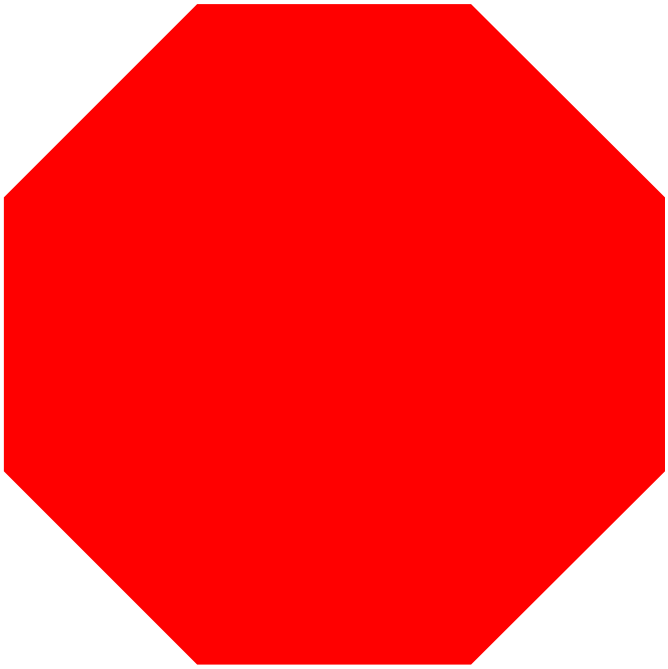
In[•]:=
```
Graphics[Style[Circle[], Red]]
```

Out[•]=



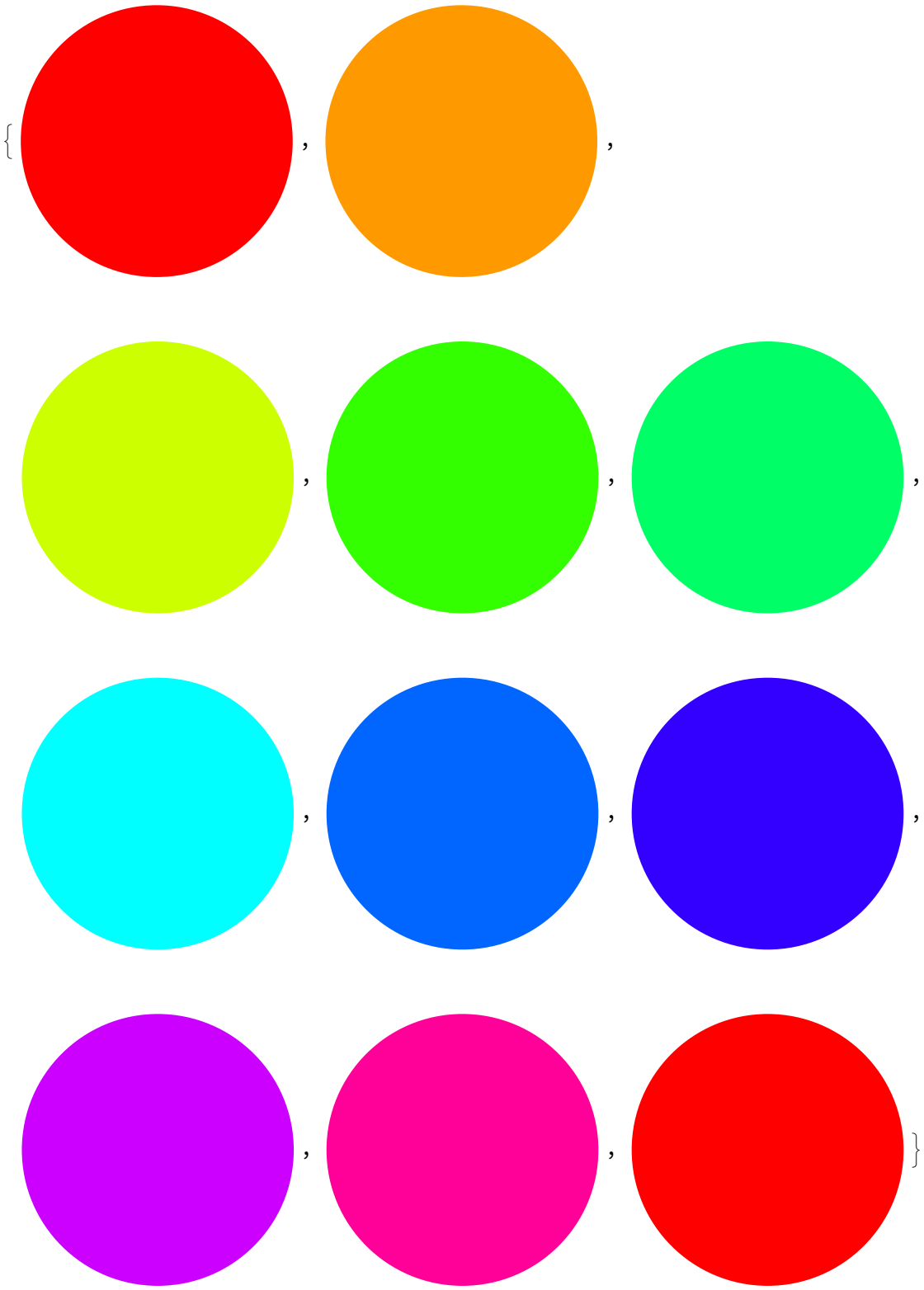
In[•]:=
```
Graphics[Style[RegularPolygon[8], Red]]
```

Out[•]=



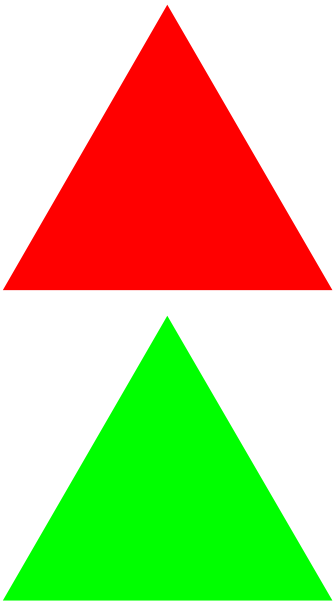
In[ ]:=
```
Table[Graphics[Style[Disk[], Hue[n]]], {n, 0, 1, 0.1}]
```

Out[ ]=



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

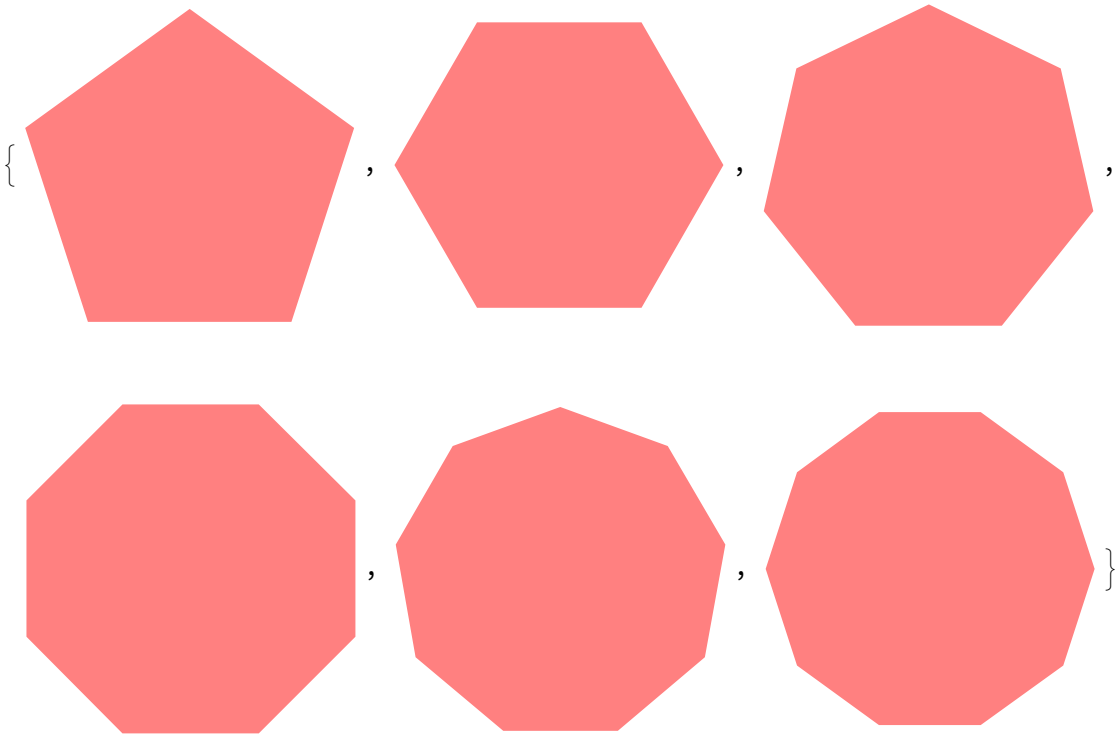
Out[ ]=



In[ ]:=

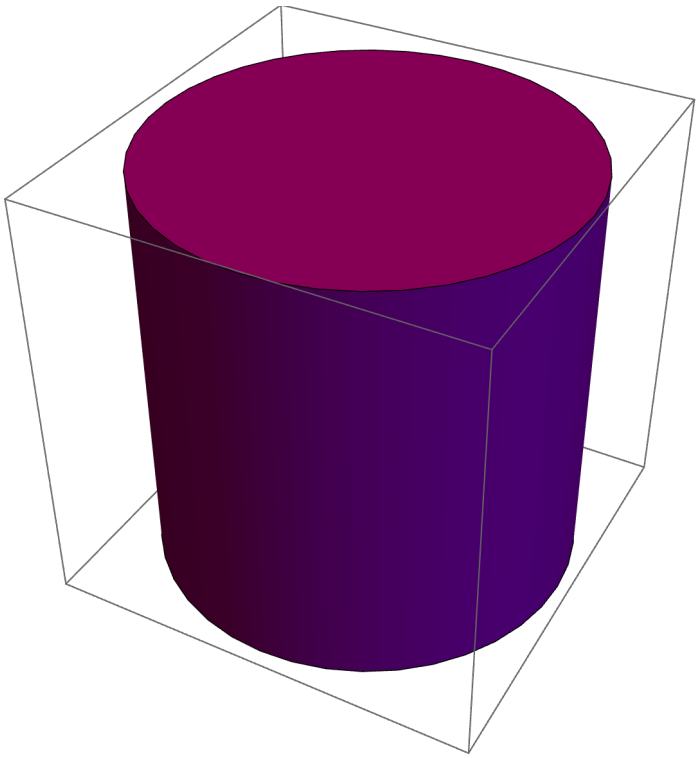
In[ ]:=
```
Table[Graphics[Style[RegularPolygon[n], Pink]], {n, 5, 10}]
```

Out[ ]=



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

Out[•]=



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

Out[•]=