Brian — PS 2 — 2025-01-21 — Solution

Exercises from *EIWL3* Section 5

```
(* 5.1 *) Reverse[Range[10]^2]
(* I could square and reverse or reverse and square. *)
```

Out[•]=

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

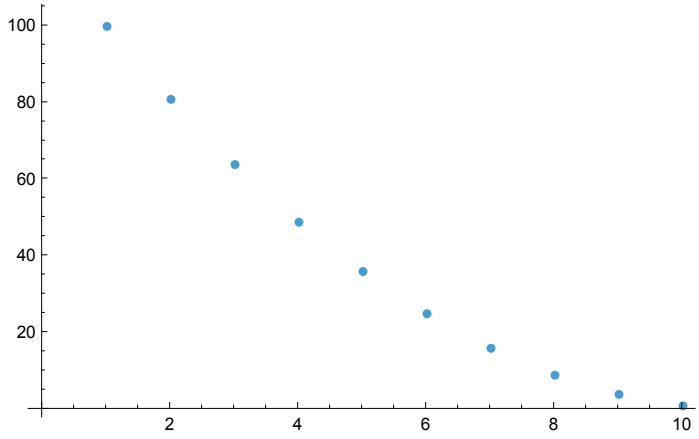
```
(* 5.2 *) Total[Reverse[Range[3]]^2]
```

Out[11]=

```
14
```

```
(* 5.3 *) ListPlot[Reverse[Range[10]]^2 ]
```

Out[•]=




```
(* 5.4 *) Sort[Join[Range[4], Range[4]]]
```

Out[•]=

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

```
(* 5.5 *) Range[10, 20, 1] (* Range[10, 20, 1] is simpler
 and clearer but it isn't what Wolfram requested us to do. *)
```

Out[•]=

```
{10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

```
Range[11] + 9 (* This way uses Plus as Wolfram requested *)
```

```
(* 5.6 *) Sort[Join[Range[5]^2, Range[5]^3]]
```

Out[•]=

```
{1, 1, 4, 8, 9, 16, 25, 27, 64, 125}
```

```
(* 5.7 *) Length[IntegerDigits[2^128]]
```

Out[•]=

```
39
```

```
(* 5.8 *) First[IntegerDigits[2^32]]
```

Out[•]=

```
4
```

```
(* 5.9 *) Take[IntegerDigits[2^100], 10]
```

Out[•]=

```
{1, 2, 6, 7, 6, 5, 0, 6, 0, 0}
```

```
(* 5.10 *) Max[IntegerDigits[2^20]]
```

Out[•]=

```
8
```

```
(* 5.11 *) Count[IntegerDigits[2^1000], 0]
```

Out[•]=

```
28
```

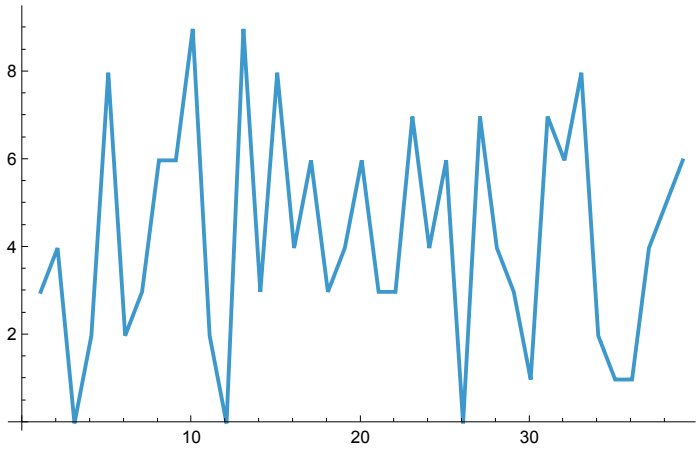
```
(* 5.12 *) Sort[IntegerDigits[2^20]][[0]]
(* I am using a special notation for Part *)
```

Out[•]=

```
List
```

```
(* 5.13 *) ListLinePlot[IntegerDigits[2^128]]
```

Out[•]=




```
(* 5.14 *) Drop[Take[Range[100], 20], 10]
```

Out[•]=

```
{11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

Exercises from *EIWL3* Section 6

```
(* 6.1 *) Table[1000, 5]
```

Out[•]=

```
{1000, 1000, 1000, 1000, 1000}
```

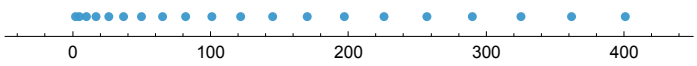
```
(* 6.2 *) Table[n^3, {n, 10, 20}]
```

Out[ ]=

```
{1000, 1331, 1728, 2197, 2744, 3375, 4096, 4913, 5832, 6859, 8000}
```

In[15]:=
```
(* 6.3 *) NumberLinePlot[Table[n^2, {n, 20}]]
```

Out[15]=




```
(* 6.4 *) Table[i, {i, 2, 20, 2}] (* I assume he wants to use Table with steps, but there are lots of other ways of doing this. E.g., *)
```

In[14]:=
```
Table[i, {i, 10}] 2
```

Out[14]=

```
{2, 4, 6, 8, 10, 12, 14, 16, 18, 20}
```

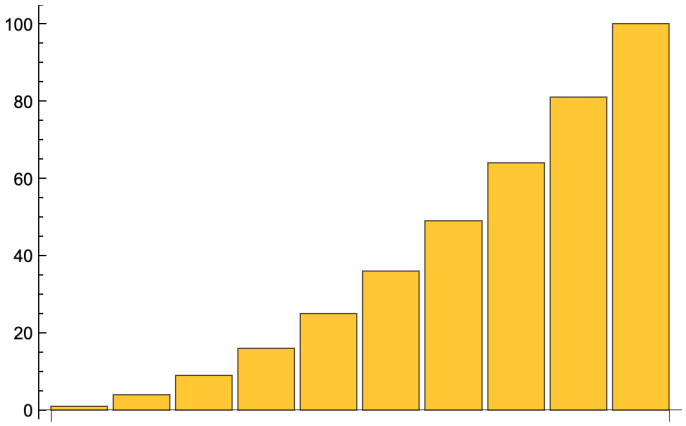
In[13]:=
```
(* 6.5 *) Table[i, {i, 10}]
```

Out[13]=

```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

In[12]:=
```
(* 6.6 *) BarChart[Table[i^2, {i, 10}]]
```

Out[12]=



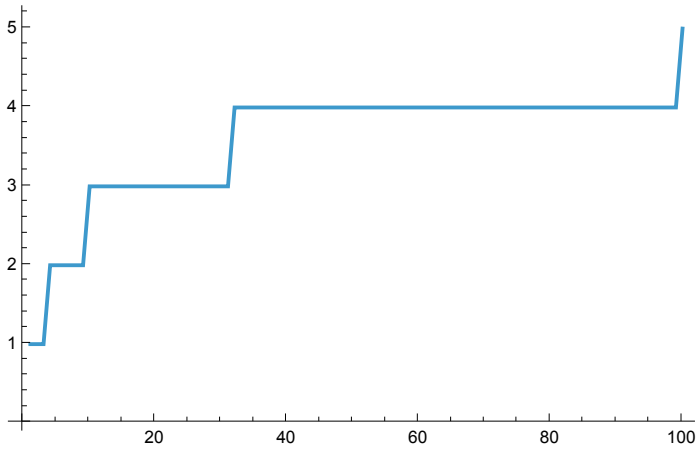

```
(* 6.7 *) Table[IntegerDigits[i^2], {i, 10}]
```

Out[16]=

```
{{1}, {4}, {9}, {1, 6}, {2, 5}, {3, 6}, {4, 9}, {6, 4}, {8, 1}, {1, 0, 0}}
```

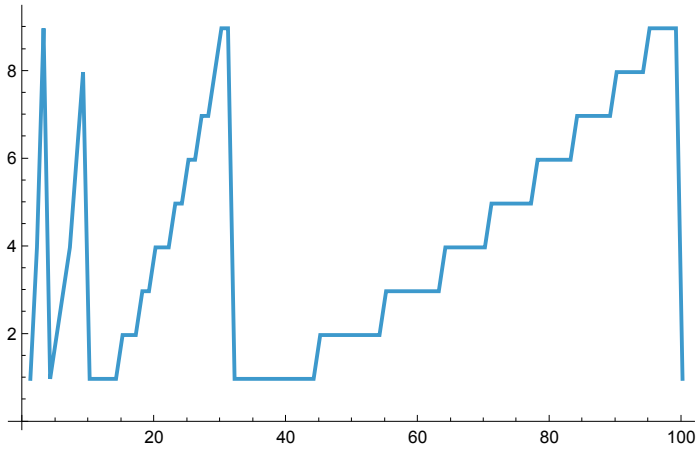
In[18]:=
```
(* 6.8 *) ListLinePlot[Table[Length[IntegerDigits[i^2]], {i, 100}]]
```

Out[18]=



In[17]:=
```
(* 6.8 *) ListLinePlot[Table[First[IntegerDigits[i^2]], {i, 100}]]
```

Out[17]=



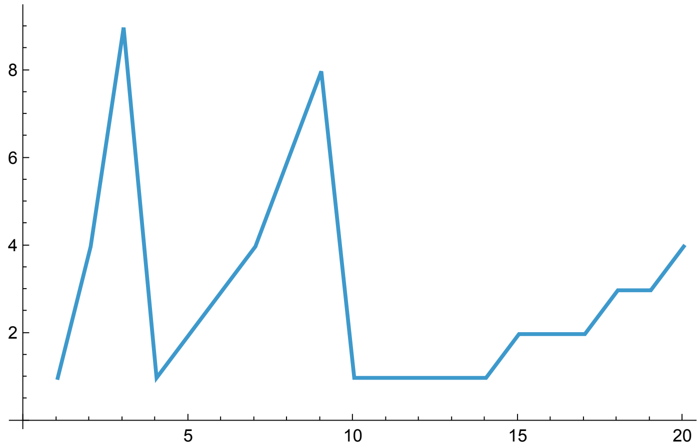
In[19]:=
```
(* 6.9 *)Table[First[IntegerDigits[i^2]], {i, 20}]
```

Out[19]=

```
{1, 4, 9, 1, 2, 3, 4, 6, 8, 1, 1, 1, 1, 1, 2, 2, 2, 3, 3, 4}
```

```
(* 6.10 *) ListLinePlot[Table[First[IntegerDigits[i^2]], {i, 20}]]
```

Out[21]=



Exercises from *EIWL3* Section 7

```
(* 7.1 *) {Red, Yellow, Green}
```

Out[ ]=

```
(* 7.2 *) Column[{Red, Yellow, Green}]
```

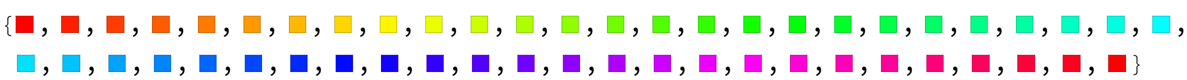
Out[ ]=

```
(* 7.3 *) ColorNegate[Orange]
```

Out[ ]=

```
(* 7.4 *) Table[Hue[i], {i, 0, 1, 0.02}]
```

Out[48]=



In[51]:=

```
(* 7.5 *) Table[RGBColor[1.0, green, 1.0], {green, 0, 1, 0.05}]
```

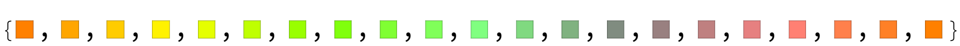
Out[51]=

```
(* 7.6 *) Blend[{Pink, Yellow}]
```

Out[55]=

```
(* 7.7 *)Table[Blend[{Hue[i], Yellow}] , {i, 0, 1, 0.05}]
```

Out[54]=



```
(* 7.8 *) Table[Style[i, Hue[i]], {i, 0.0, 1.0, 0.1}]
```

Out[•]=

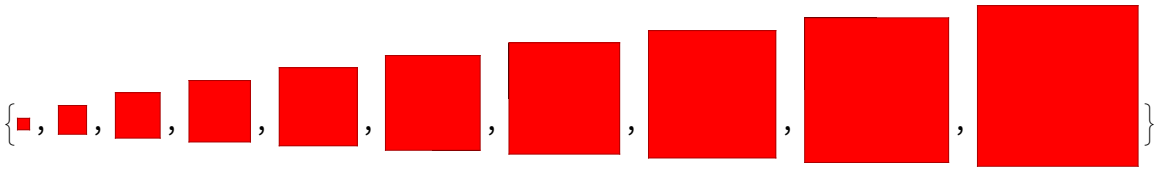
```
{0., 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.}
```

```
(* 7.9 *) Style[Purple, 100]
```

Out[•]=

```
(* 7.10 *) Table[Style[Red, i], {i, 10, 100, 10}]
```

Out[•]=



In[56]:=
```
(* 7.11 *) Style[999, Red, 100]
```

Out[56]=

999

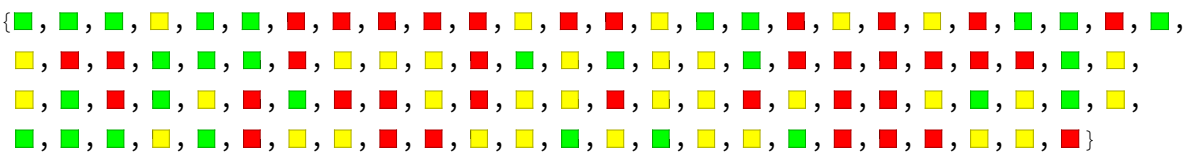
```
(* 7.12 *) Table[Style[i, i], {i, Range[10]^2}]
```

Out[•]=

1 4 9 16 25 36 49 64 81 100

```
(* 7.13 *) {Red, Yellow, Green}[[RandomInteger[2, 100] + 1]]
```

Out[•]=



```
(* 7.14 *) Table[Style[i, 3 i], {i, Take[IntegerDigits[2^1000], 50]}]
```

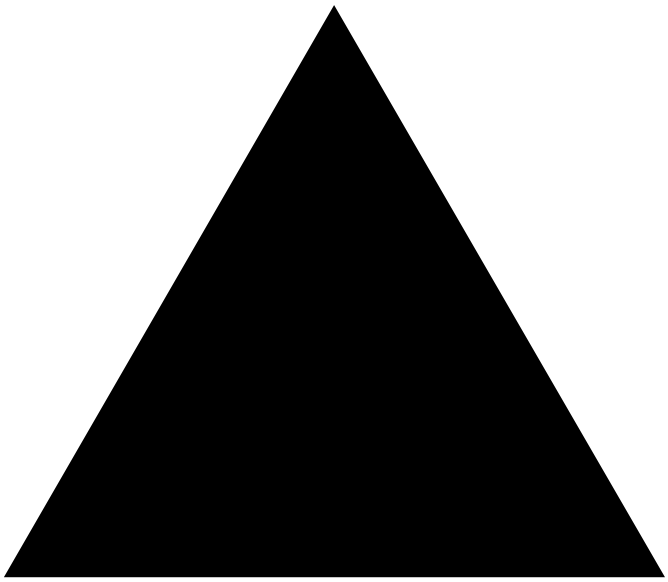
Out[•]=

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

Exercises from *EIWL3* Section 8

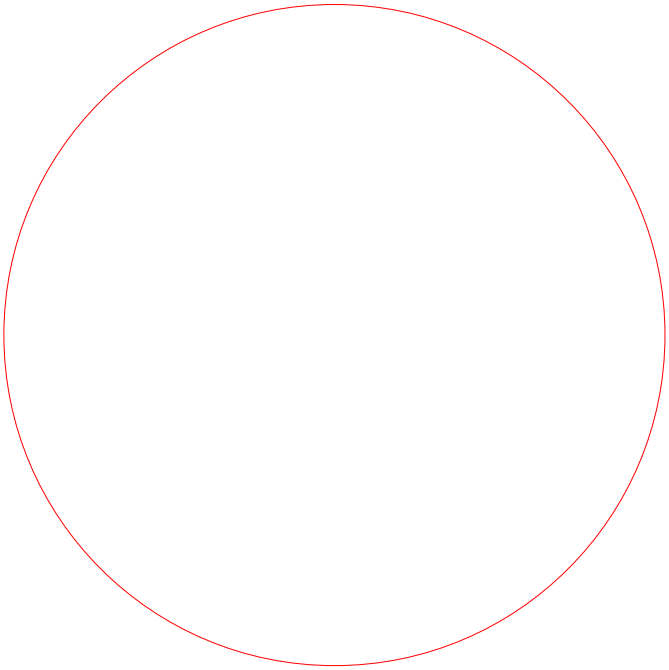
```
(* 8.1 *) Graphics[RegularPolygon[3]]
```

Out[ ]=



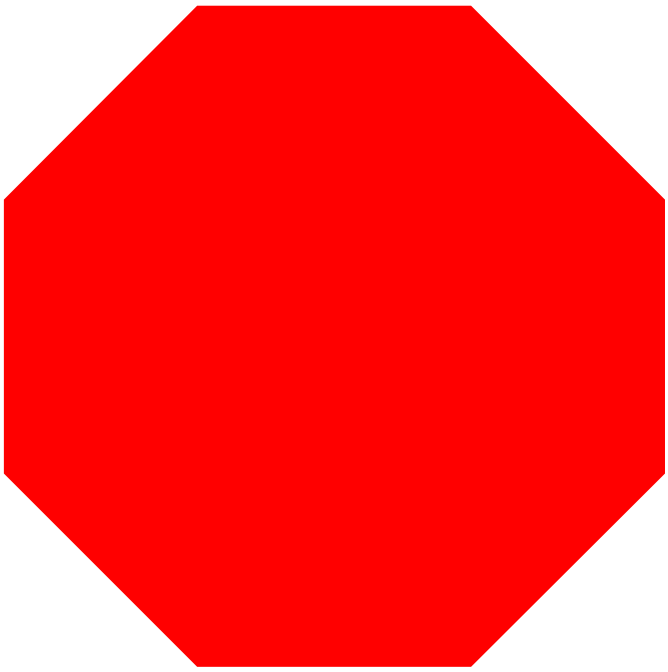
```
(* 8.2 *) Graphics[Style[Circle[], Red]]
```

Out[ ]=



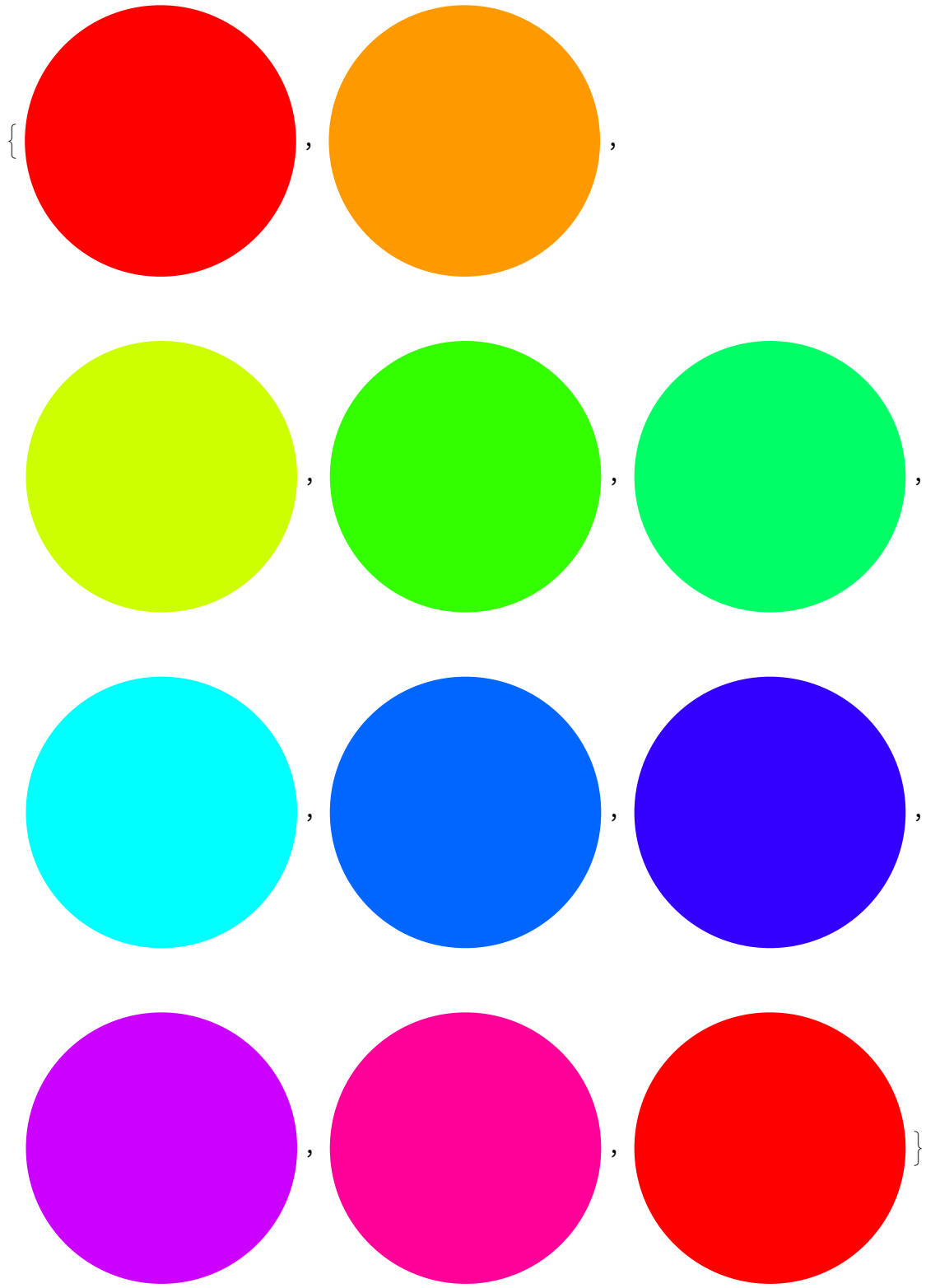
```
(* 8.3 *) Graphics[Style[RegularPolygon[8], Red]]
```

Out[•]=



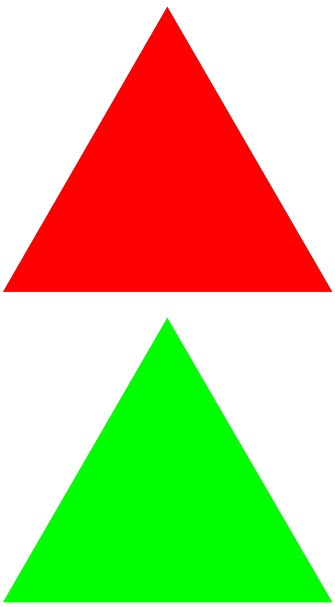
```
(* 8.4 *) Table[Graphics[Style[Disk[], Hue[i]]], {i, 0.0, 1.0, 0.1}]
```

Out[ ]=



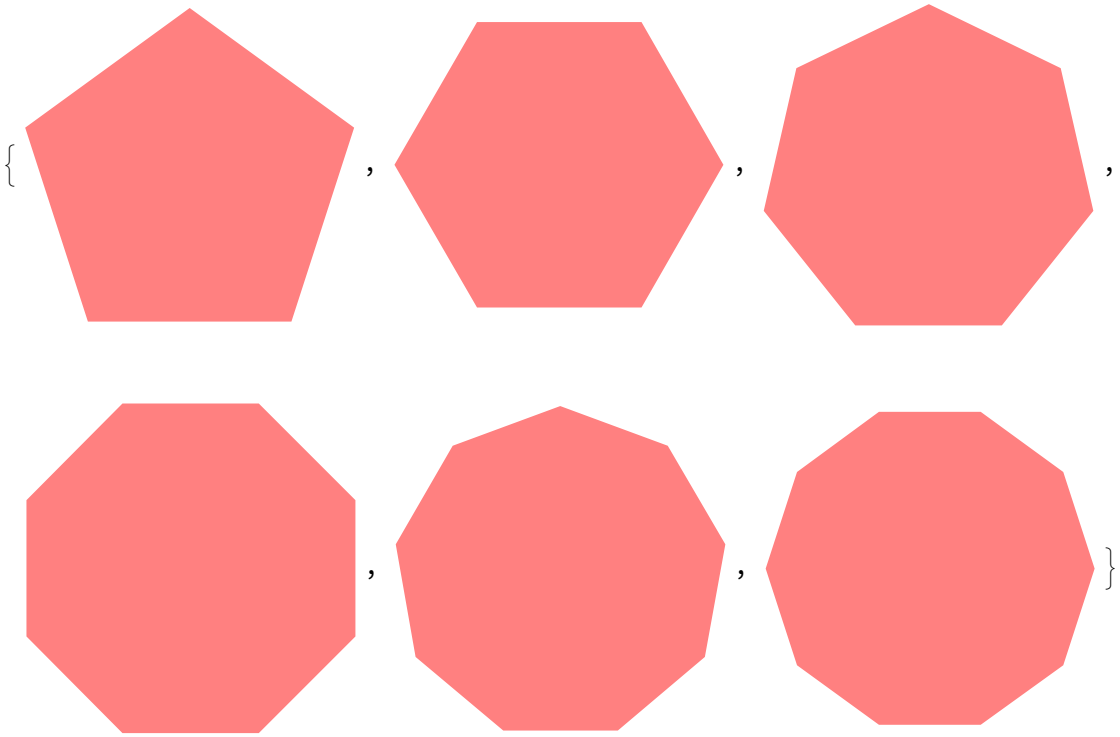
```
(* 8.5 *) Column[{
  Graphics[Style[RegularPolygon[3], Red]],
  Graphics[Style[RegularPolygon[3], Green]]
 }] (* The nested brackets and braces got deep
 enough that I used indenting to help me get it right. *)
```

Out[•]=



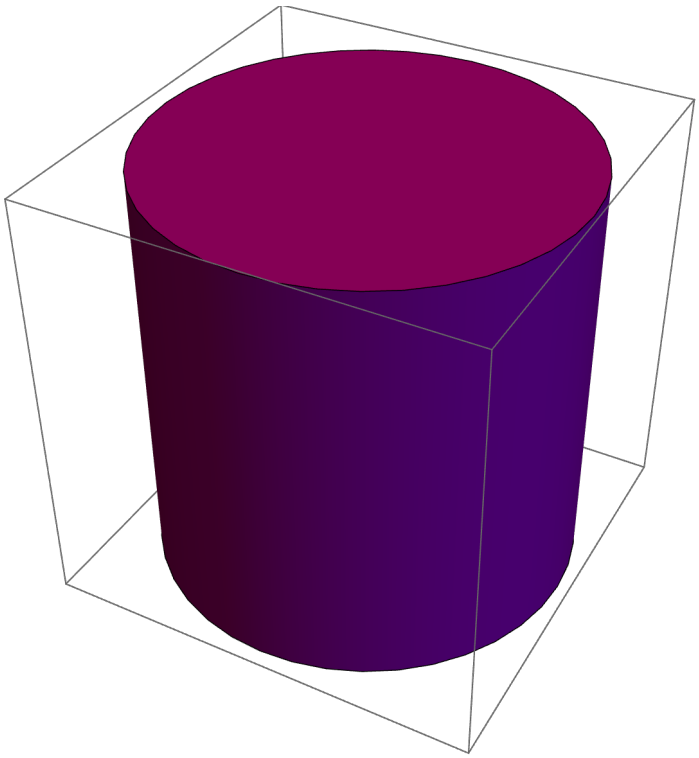
```
(* 8.6 *) Table[Graphics[Style[RegularPolygon[i], Pink]], {i, 5, 10}]
```

Out[•]=



```
(* 8.7 *) Graphics3D[Style[Cylinder[], Purple]]
```

Out[ ]=



```
(* 8.8 *) Graphics[Table[
  Style[RegularPolygon[i], RandomColor[]],
  {i, 8, 3, -1}
 ]]
```

Out[ ]=