Brian — PS 2 — 2025-01-21 — Solution

Exercises from *EIWL3* Section 5

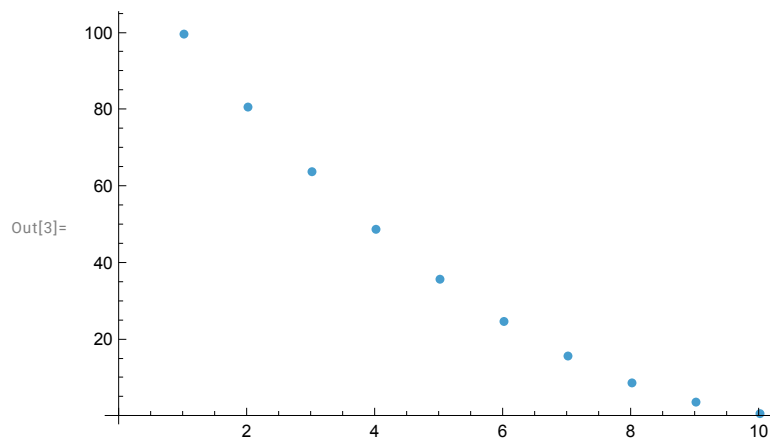In[1]:= `Reverse[Range[10]^2] (* I could square and reverse. *)`

Out[1]= {100, 81, 64, 49, 36, 25, 16, 9, 4, 1}

In[2]:= `Reverse[Range[10]]^2`
      `(* Or I could get the exact same thing by reversing and then squaring. *)`

Out[2]= {100, 81, 64, 49, 36, 25, 16, 9, 4, 1}

In[3]:= `ListPlot[Reverse[Range[10]]^2 ]`

Out[3]=

In[4]:= `Sort[Join[Range[4], Range[4]]]`

Out[4]= {1, 1, 2, 2, 3, 3, 4, 4}

In[5]:= `Range[10, 20, 1] (* Range[10, 20, 1] is simpler and clearer than Range[11] +`
      `9 but it doesn't use plus, and for some reason, Wolfram requested we use plus *)`

Out[5]= {10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}

In[6]:= `Sort[Join[Range[5]^2, Range[5]^3]]`

Out[6]= {1, 1, 4, 8, 9, 16, 25, 27, 64, 125}

In[7]:= `Length[IntegerDigits[2^128]]`

Out[7]= 39

In[8]:= `First[IntegerDigits[2^32]]`

Out[8]= 4

In[9]:= `Take[IntegerDigits[2^100], 10]`

Out[9]= {1, 2, 6, 7, 6, 5, 0, 6, 0, 0}

In[10]:= `Max[IntegerDigits[2^20]]`

Out[10]=

8

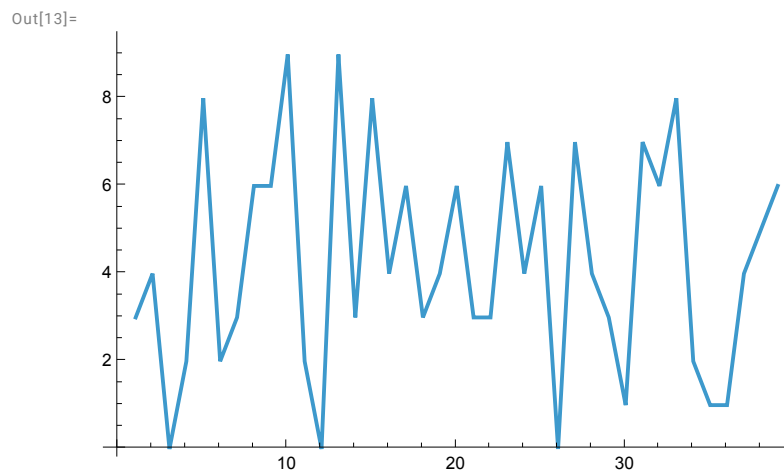In[11]:= `Count[IntegerDigits[2^1000], 0]`

Out[11]=

28

In[12]:= `Sort[IntegerDigits[2^20]]〚0〛 (* I am using a special notation for Part *)`

Out[12]=

List

In[13]:= `ListLinePlot[IntegerDigits[2^128]]`

Out[13]=

In[14]:= `Drop[Take[Range[100], 20], 10]`

Out[14]=

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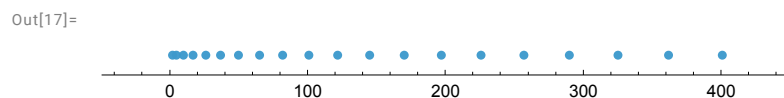

Exercises from *EIWL3* Section 6

In[15]:= `Table[1000, 5]`

Out[15]=

{1000, 1000, 1000, 1000, 1000}

In[16]:= `Table[n³, {n, 10, 20}]`

Out[16]=

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

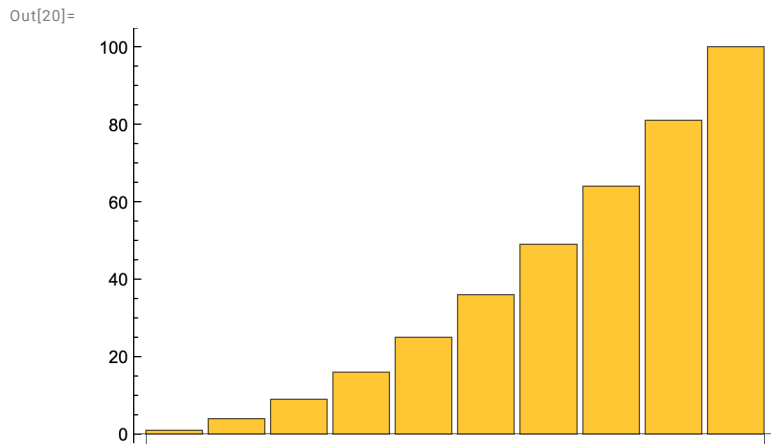In[17]:= `NumberLinePlot[Table[n², {n, 1, 20}]]`

Out[17]=

In[18]:= `Table[i, {i, 2, 20, 2}]` `(* I assume he wants us to keep using Table, but there are lots of other ways of doing this *)`

Out[18]=

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

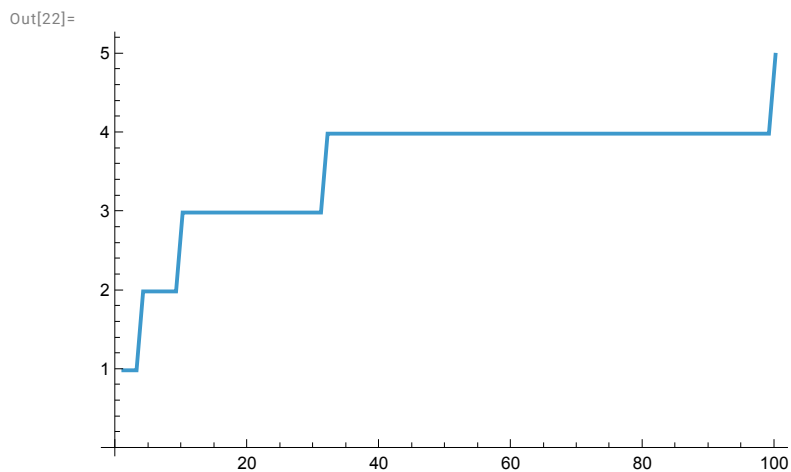In[19]:= `Table[i, {i, 1, 10}]`

Out[19]=

{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
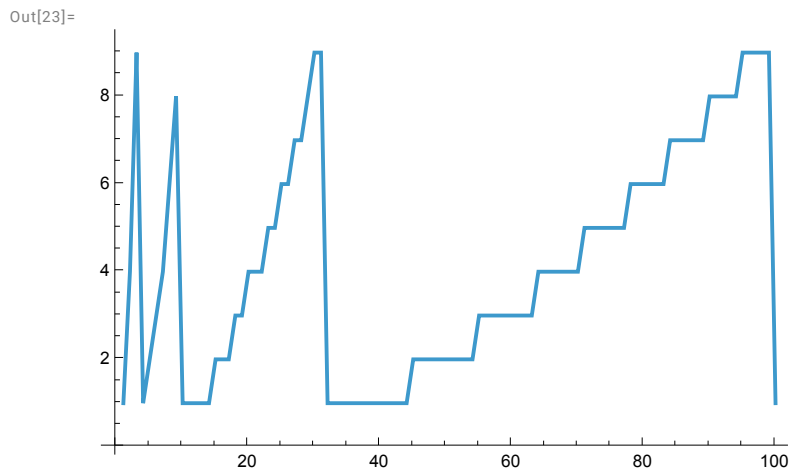
In[20]:= `BarChart[Table[i^2, {i, 1, 10}]]`

Out[20]=

In[21]:= `Table[IntegerDigits[i^2], {i, 1, 10}]`

Out[21]=

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

In[22]:= `ListLinePlot[Table[Length[IntegerDigits[i^2]], {i, 1, 100}]]`

Out[22]=

In[23]:= `ListLinePlot[Table[First[IntegerDigits[i²]], {i, 1, 100}]]`

Out[23]=

Exercises from *EIWL3* Section 7

In[24]:= `{Red, Yellow, Green}`

Out[24]=

{ ■ , ■ , ■ }

In[25]:= `Column[{Red, Yellow, Green}]`

Out[25]=

■
■
■

In[26]:= `ColorNegate[Orange]`

Out[26]=

■

In[27]:= `Table[Hue[i], {i, 0, 1, 0.05}]`

Out[27]=

{ ■ , ■ }

In[28]:= `Blend[{Pink, Yellow}]`

Out[28]=

■

In[29]:= `Table[Blend[{Hue[i], Yellow}], {i, 0, 1, 0.05}]`

Out[29]=

{ ■ , ■ }

In[30]:= `Table[Style[i, Hue[i]], {i, 0.0, 1.0, 0.1}]`

Out[30]=

{0., 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.}
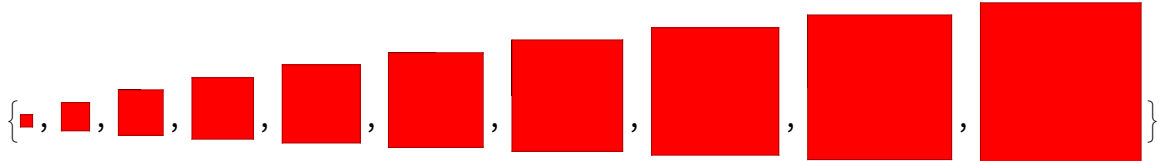
In[31]:= `Style[Purple, 100]`

Out[31]=
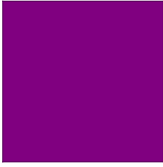
In[32]:= `Table[Style[Red, i], {i, 10, 100, 10}]`

Out[32]=

In[33]:= `Style[999, Red, 100]`

Out[33]=

In[34]:= `Table[Style[i, i], {i, Range[10]^2}]`

Out[34]=

$\{\,,\,_4,\,_9,\,16,\,25,\,36,\,49,\,64,\,81,\,100\,\}$

In[35]:= `{Red, Yellow, Green}⟦RandomInteger[2, 100] + 1⟧`

Out[35]=
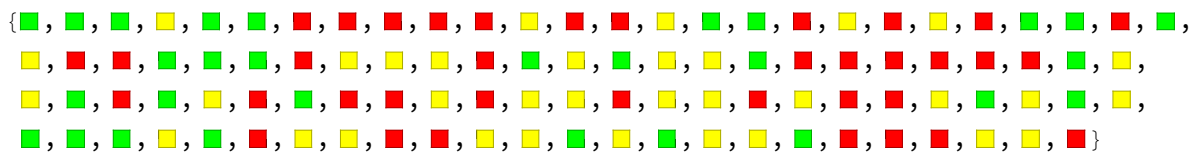
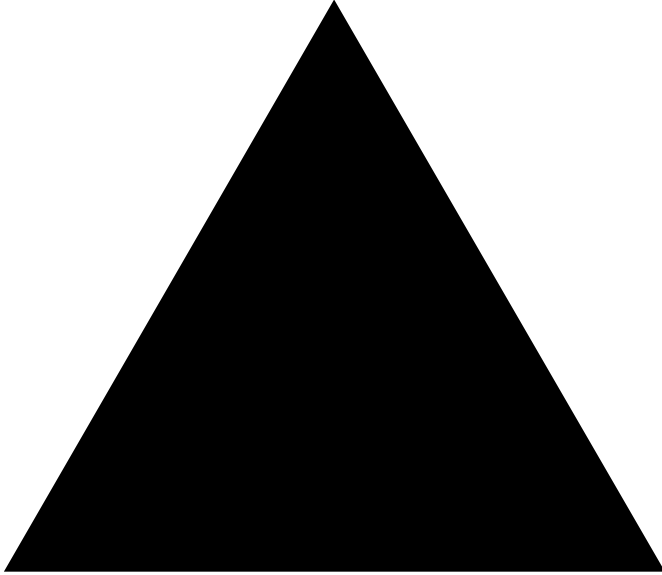In[36]:= `Table[Style[i, 3 i], {i, Take[IntegerDigits[2^1000], 50]}]`

Out[36]=

$\{\,_1,\,\,,7,\,_1,5,\,\,,8,6,\,\,,7,\,_1,8,6,\,_2,6,7,\,_3,\,_2,\,\,,9,\,_4,8,\,_4,\,_2,5,$
$\,\,_4,9,\,\,,6,\,\,,\,\,,\,\,,\,_1,8,\,_1,\,\,,5,6,\,_1,4,\,\,,4,8,\,_1,\,_1,7,\,\,,5,5\}$

Exercises from *EIWL3* Section 8
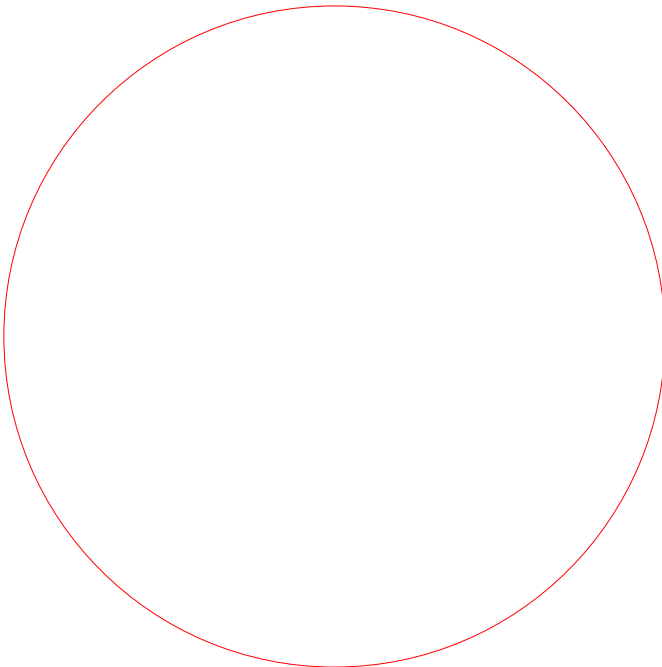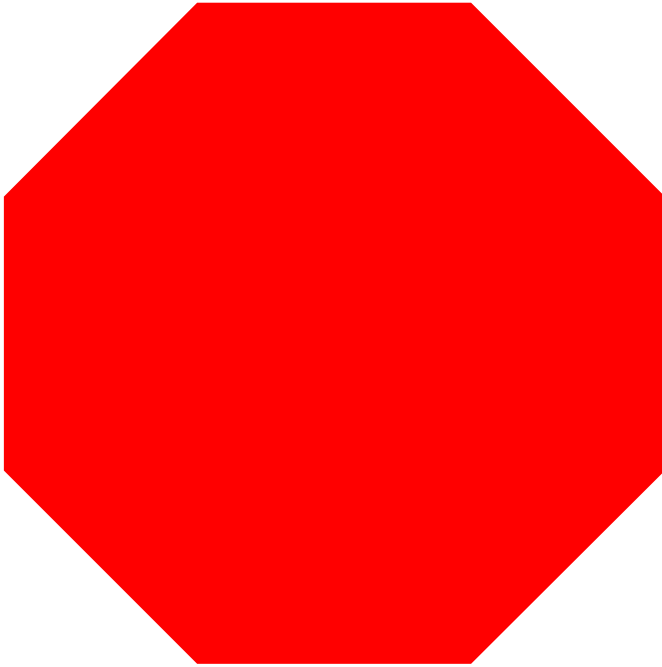
In[37]:= `Graphics[RegularPolygon[3]]`

Out[37]=

In[38]:= `Graphics[Style[Circle[], Red]]`

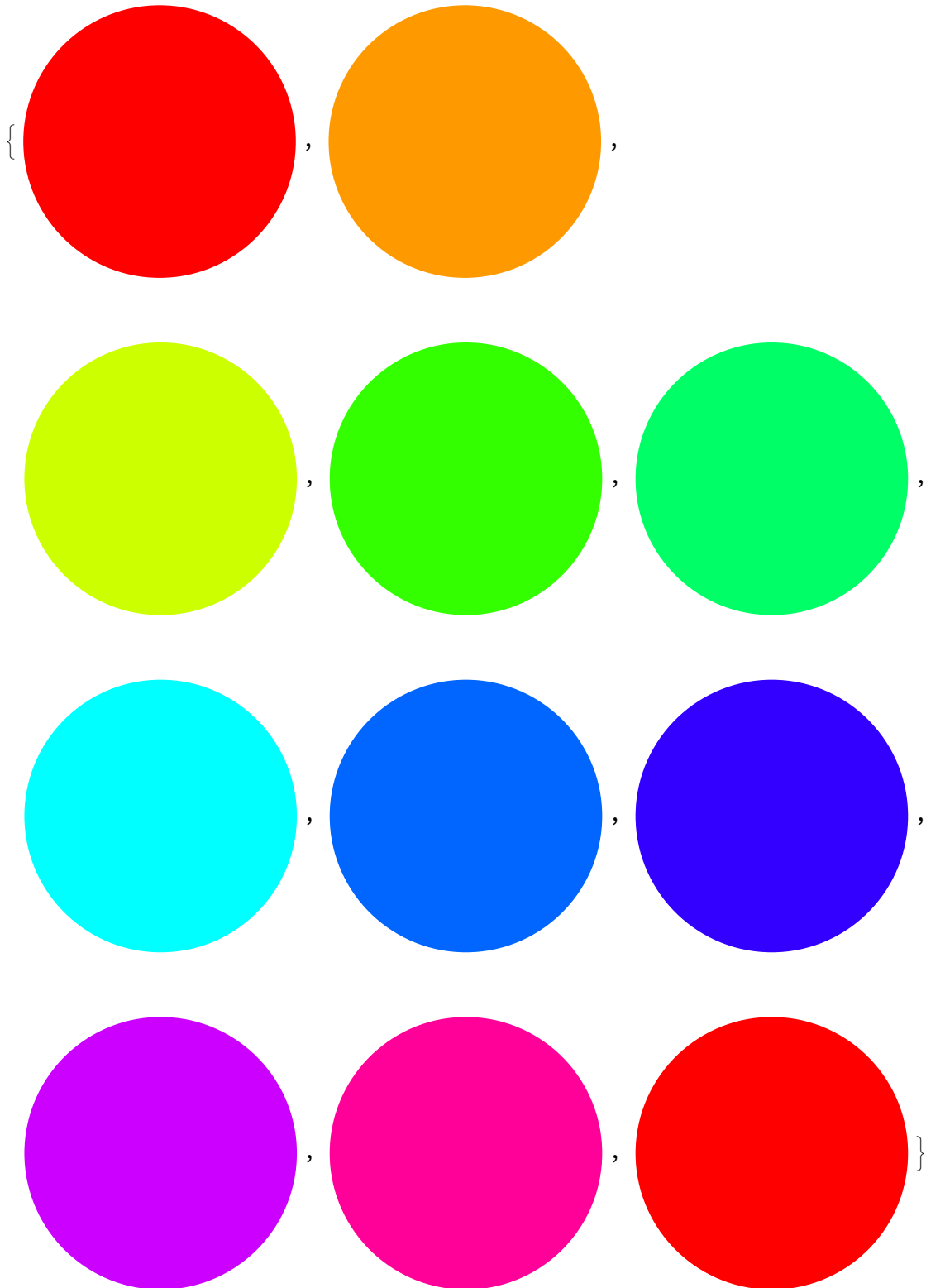Out[38]=

In[39]:= `Graphics[Style[RegularPolygon[8], Red]]`

Out[39]=
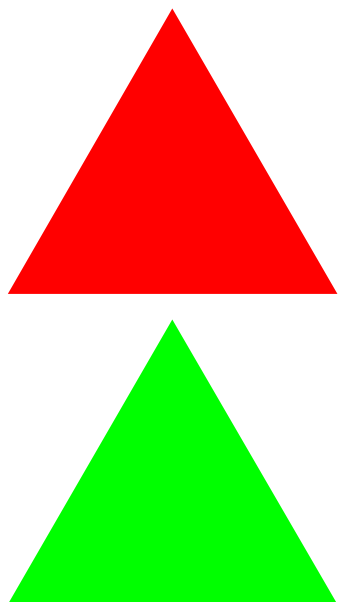
In[40]:= `Table[Graphics[Style[Disk[], Hue[i]]], {i, 0.0, 1.0, 0.1}]`
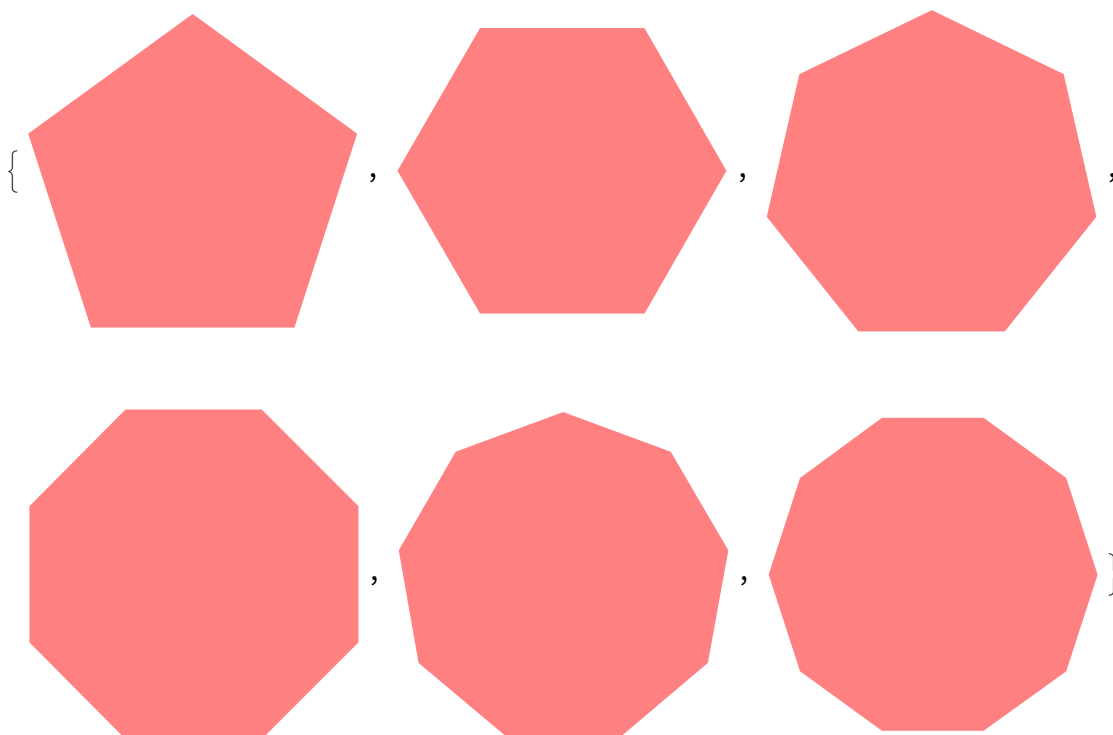
Out[40]=

In[41]:=
```
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. *)
```
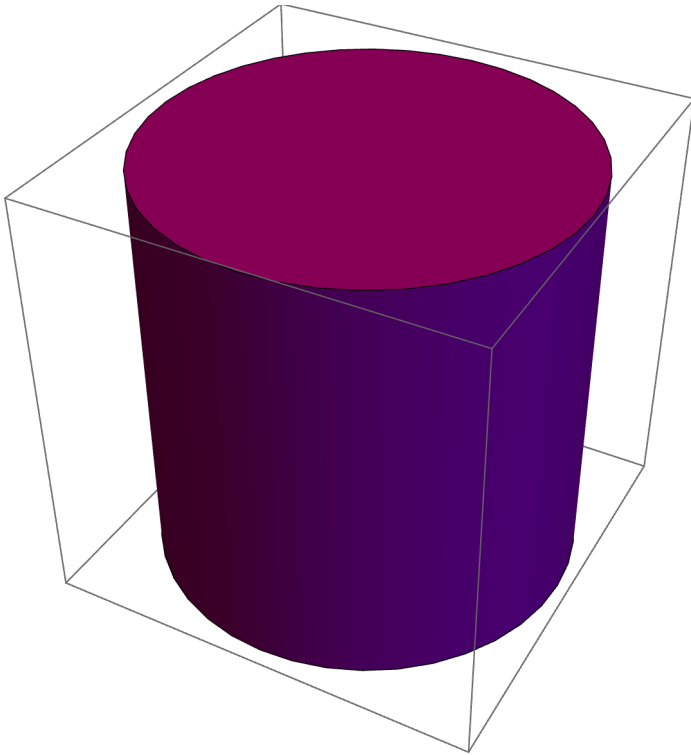
Out[41]=

In[42]:=
```
Table[Graphics[Style[RegularPolygon[i], Pink]], {i, 5, 10}]
```

Out[42]=

In[43]:= `Graphics3D[Style[Cylinder[], Purple]]`

Out[43]=

```
In[44]:= Graphics[Table[
           Style[RegularPolygon[i], RandomColor[]],
           {i, 8, 3, -1}
          ]]
```

Out[44]=