Brian — PS 2 — 2025-01-21 — Solution

Exercises from *EIWL3* Section 5

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

Out[ ]=

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

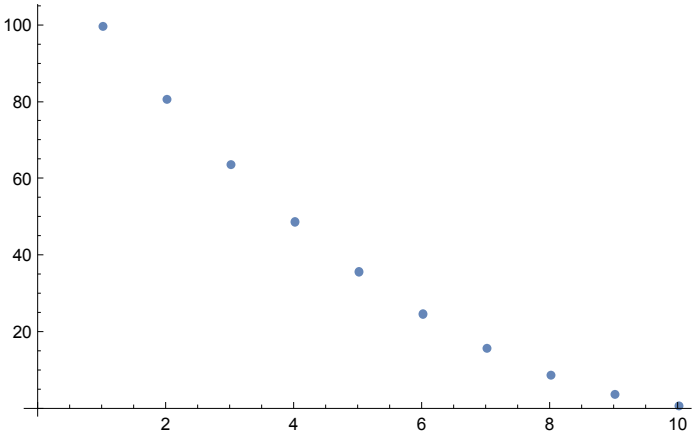
```
Reverse[Range[10]]^2
 (* Or I could get the exact same thing by reversing and then squaring. *)
```

Out[ ]=

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

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

Out[2]=



In[3]:=
```
Sort[Join[Range[4], Range[4]]]
```

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

```
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[15]=

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

In[18]:=
```
Sort[Join[Range[5]^2, Range[5]^3]]
```

Out[18]=

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

In[21]:=
```
Length[IntegerDigits[2^128]]
```

Out[21]=

```
39
```

In[24]:=
```
First[IntegerDigits[2^32]]
```
Out[24]=
```
4
```

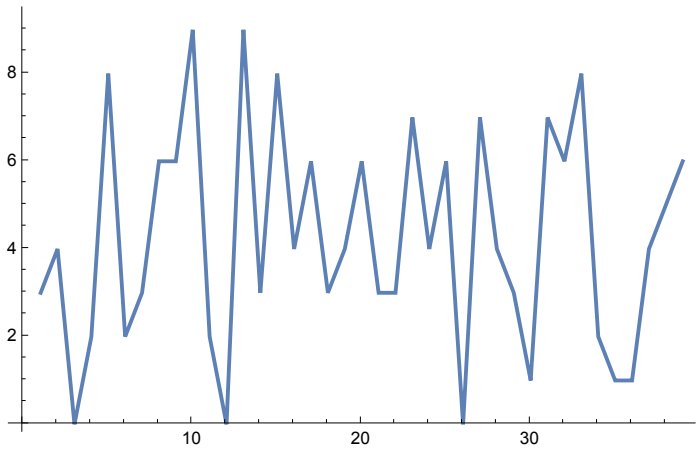
In[27]:=
```
Take[IntegerDigits[2^100], 10]
```
Out[27]=
```
{1, 2, 6, 7, 6, 5, 0, 6, 0, 0}
```

In[29]:=
```
Max[IntegerDigits[2^20]]
```
Out[29]=
```
8
```

In[32]:=
```
Count[IntegerDigits[2^1000], 0]
```
Out[32]=
```
28
```

```
Sort[IntegerDigits[2^20]][[0]] (* I am using a special notation for Part *)
```
Out[34]=
```
{0, 1, 4, 5, 6, 7, 8}
```

In[36]:=
```
ListLinePlot[IntegerDigits[2^128]]
```
Out[36]=



In[40]:=
```
Drop[Take[Range[100], 20], 10]
```
Out[40]=
```
{11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
```

Exercises from *EIWL3* Section 6

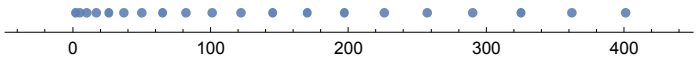
In[50]:=
```
Table[1000, 5]
```
Out[50]=
```
{1000, 1000, 1000, 1000, 1000}
```

In[52]:=
```
Table[n^3, {n, 10, 20}]
```

Out[52]=
```
{1000, 1331, 1728, 2197, 2744, 3375, 4096, 4913, 5832, 6859, 8000}
```

In[54]:=
```
NumberLinePlot[Table[n^2, {n, 1, 20}]]
```

Out[54]=




```
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 *)
```

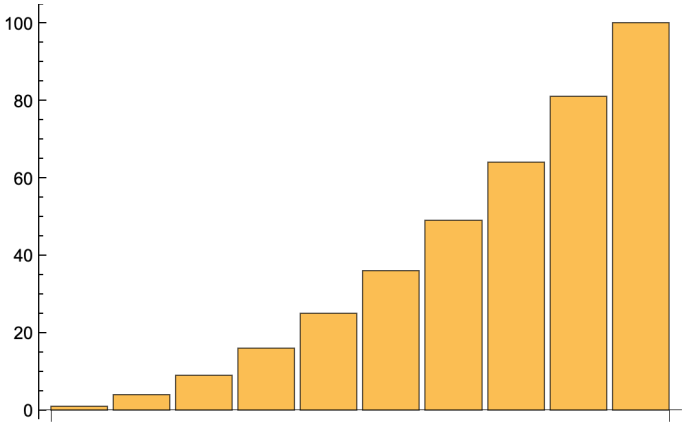
Out[56]=
```
{2, 4, 6, 8, 10, 12, 14, 16, 18, 20}
```

In[57]:=
```
Table[i, {i, 1, 10}]
```

Out[57]=
```
{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
```

In[58]:=
```
BarChart[Table[i^2, {i, 1, 10}]]
```

Out[58]=

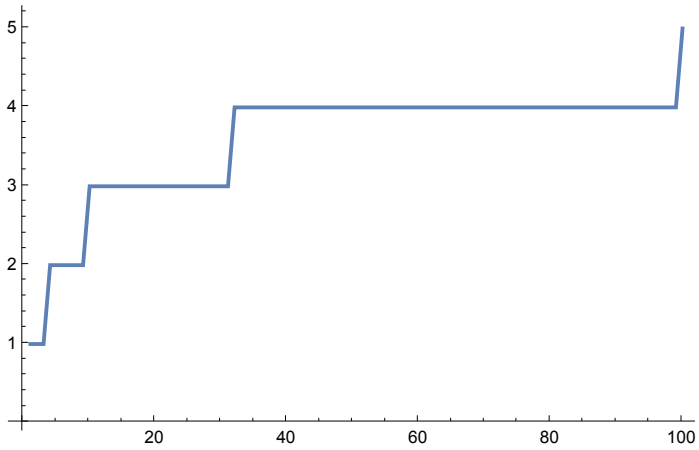


In[59]:=
```
Table[IntegerDigits[i^2], {i, 1, 10}]
```

Out[59]=
```
{{1}, {4}, {9}, {1, 6}, {2, 5}, {3, 6}, {4, 9}, {6, 4}, {8, 1}, {1, 0, 0}}
```

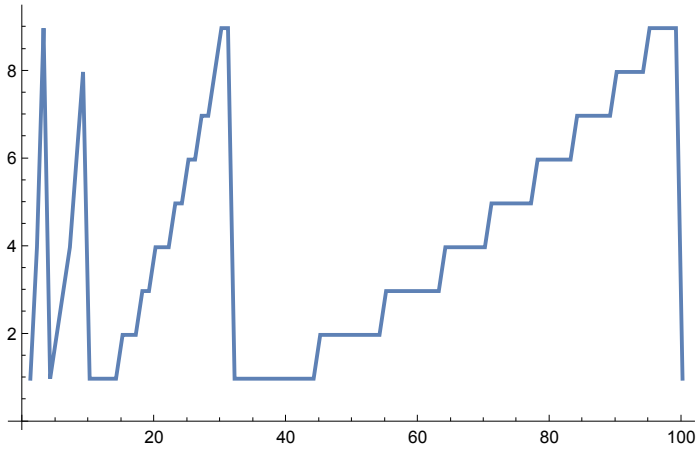
In[61]:=
```
ListLinePlot[Table[Length[IntegerDigits[i^2]], {i, 1, 100}]]
```

Out[61]=



In[62]:=
```
ListLinePlot[Table[First[IntegerDigits[i^2]], {i, 1, 100}]]
```

Out[62]=



Exercises from *EIWL3* Section 7

In[63]:=
```
{Red, Yellow, Green}
```

Out[63]=

{■, ■, ■}

In[64]:=
```
Column[{Red, Yellow, Green}]
```

Out[64]=

■
■
■

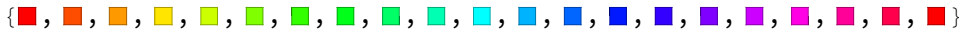
In[65]:=
```
ColorNegate[Orange]
```

Out[65]=

■

In[68]:=
```
Table[Hue[i], {i, 0, 1, 0.05}]
```

Out[68]=

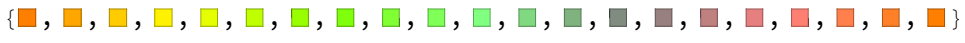


In[70]:=
```
Blend[{Pink, Yellow}]
```

Out[70]=

In[71]:=
```
Table[Blend[{Hue[i], Yellow}], {i, 0, 1, 0.05}]
```

Out[71]=



In[73]:=
```
Table[Style[i, Hue[i]], {i, 0.0, 1.0, 0.1}]
```

Out[73]=

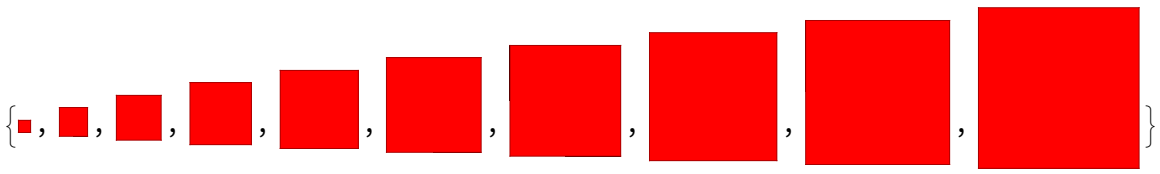
```
{0., 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1.}
```

In[74]:=
```
Style[Purple, 100]
```

Out[74]=

In[75]:=
```
Table[Style[Red, i], {i, 10, 100, 10}]
```

Out[75]=



In[76]:=
```
Style[999, Red, 100]
```

Out[76]=

999

In[79]:=
```
Table[Style[i, i], {i, Range[10]^2}]
```

Out[79]=

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

In[80]:=
```
{Red, Yellow, Green}[[RandomInteger[2, 100] + 1]]
```

Out[80]=

{■, □, □, ■, ■, □, ■, ■, ■, ■, □, □, □, ■, □, ■, ■, □, □, □, □, ■, ■, ■, ■, ■,
□, ■, ■, ■, □, □, ■, ■, ■, ■, ■, □, ■, □, ■, ■, ■, □, □, ■, ■, ■, □, ■,
□, ■, □, □, ■, ■, ■, ■, ■, ■, ■, ■, □, ■, ■, ■, □, □, □, □, □, □, ■, ■,
■, ■, □, □, □, ■, ■, ■, ■, □, ■, □, □, ■, ■, ■, □, □, ■, ■, □, ■, ■, ■}

In[84]:=
```
Table[Style[i, 3 i], {i, Take[IntegerDigits[2^1000], 50]}]
```

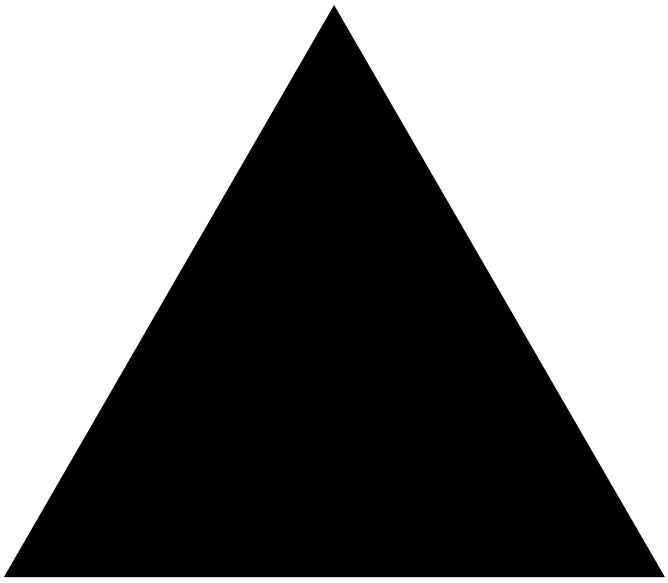
Out[84]=

{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

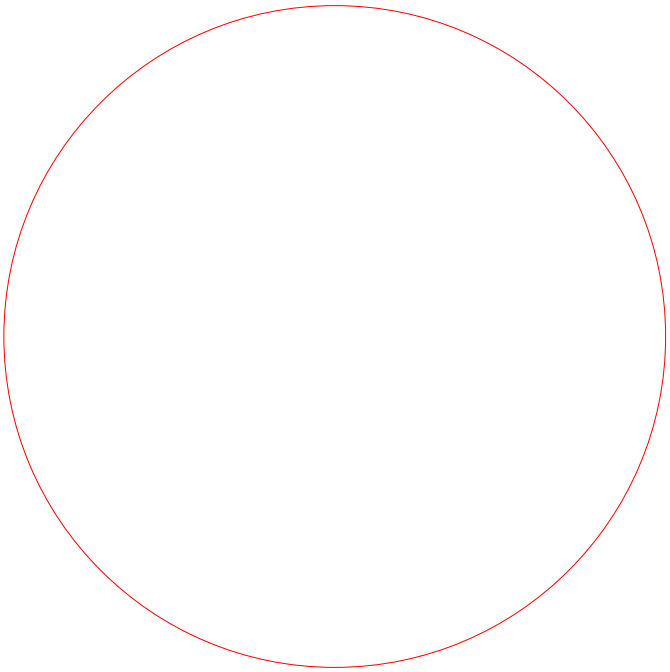
In[86]:=
```
Graphics[RegularPolygon[3]]
```

Out[86]=



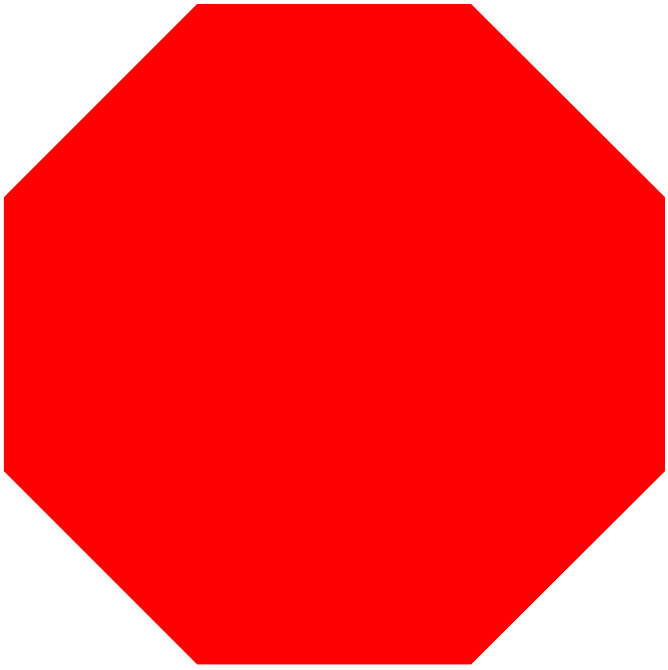
In[89]:=
```
Graphics[Style[Circle[], Red]]
```

Out[89]=



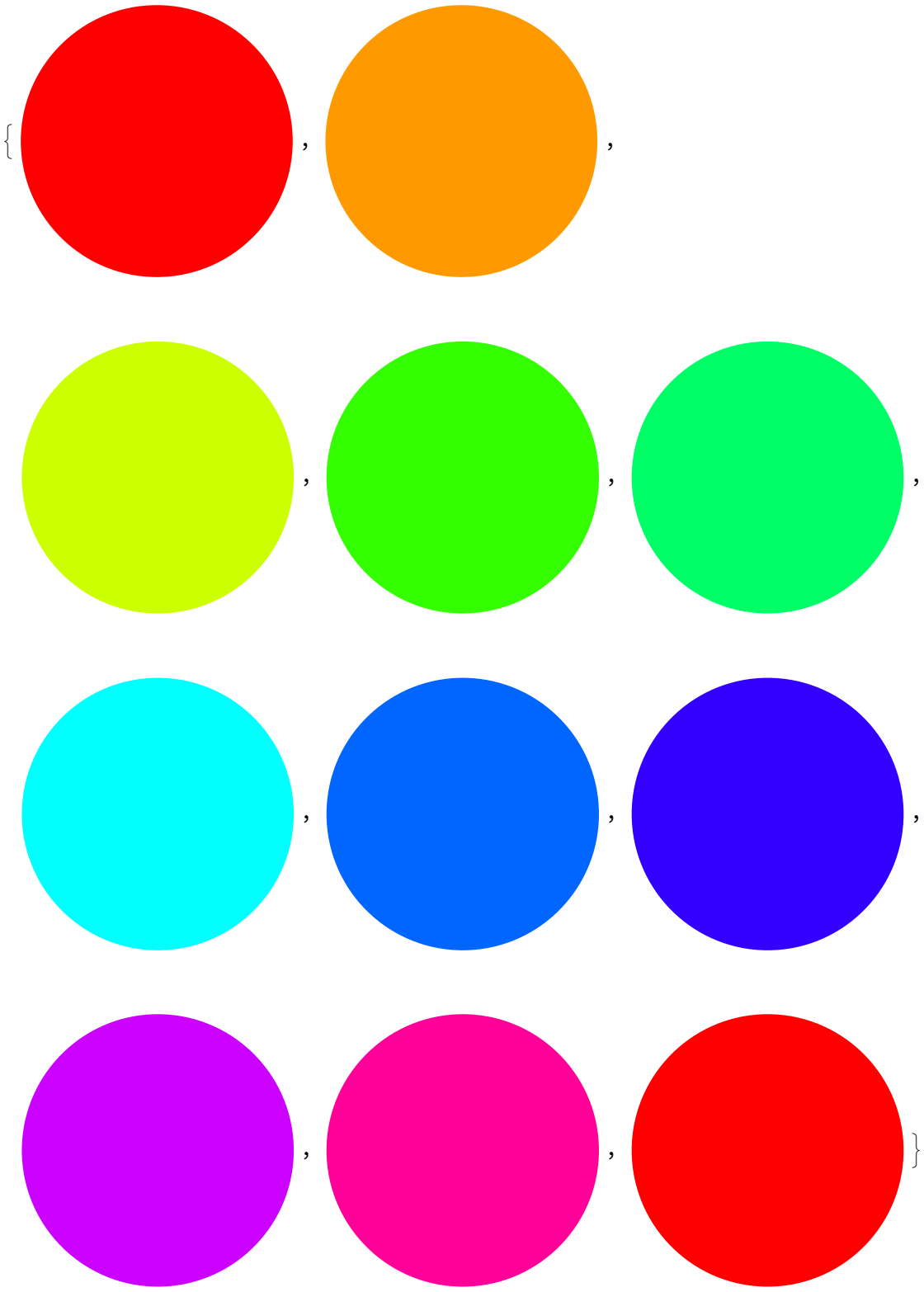
In[90]:=
```
Graphics[Style[RegularPolygon[8], Red]]
```

Out[90]=



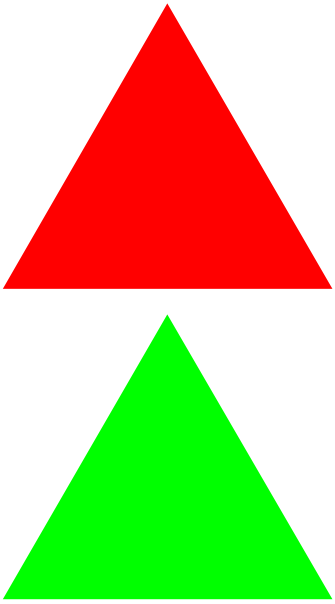
In[92]:=
```
Table[Graphics[Style[Disk[], Hue[i]]], {i, 0.0, 1.0, 0.1}]
```

Out[92]=



```
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. *)
```

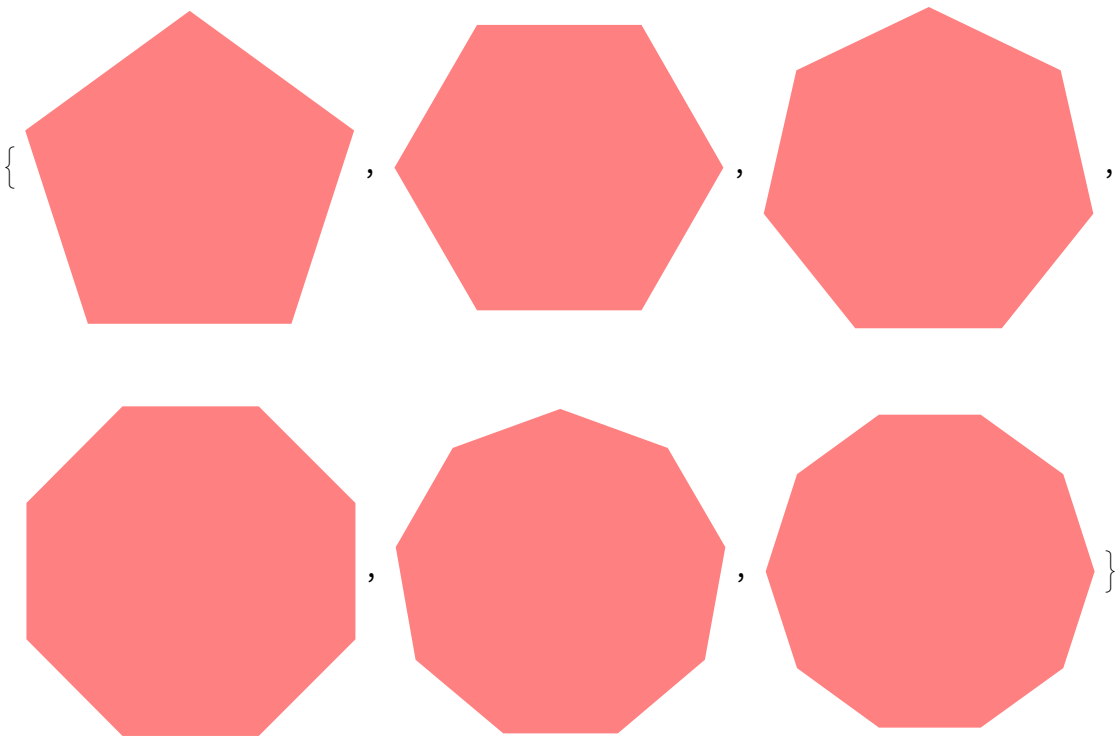
Out[99]=



In[104]:=

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

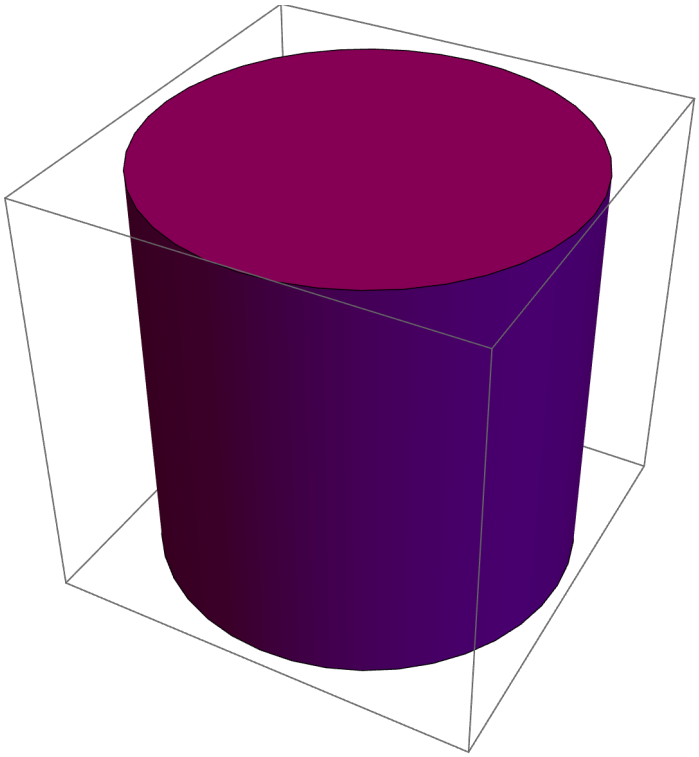
Out[104]=



In[108]:=

```
Graphics3D[Style[Cylinder[], Purple]]
```

Out[108]=



In[112]:=

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

Out[112]=