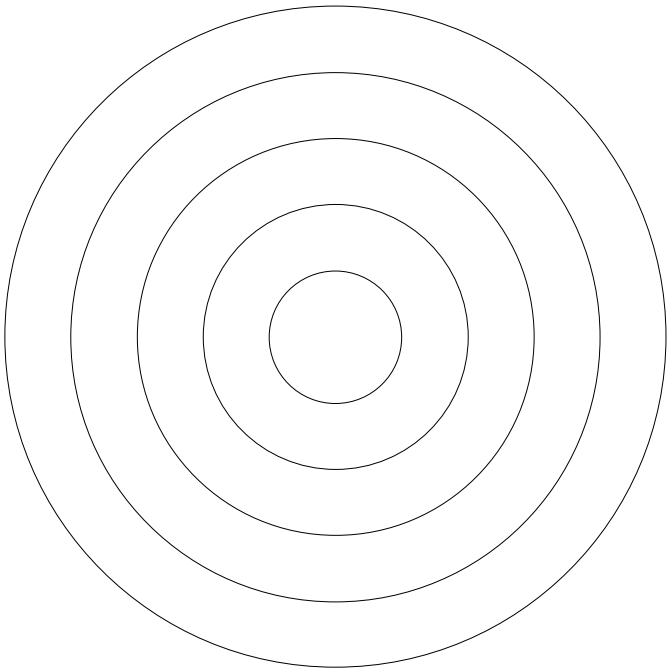
Brian — PS 5 — 2025-02-04 — Solution

EIWL3 Sections 14 and 17

Exercises from *EIWL3* Section 14

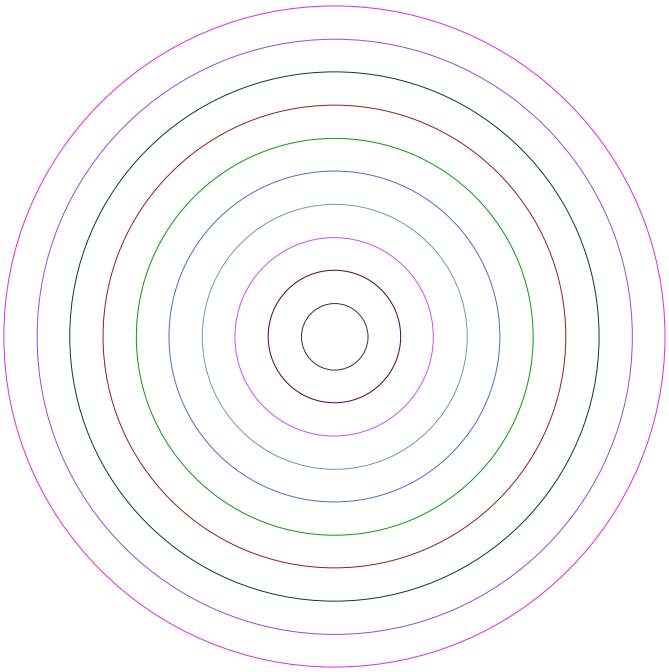
In[1]:=
```
(* 14.1 *) Graphics[Table[Circle[{0, 0}, r], {r, 1, 5}]]
```

Out[1]=



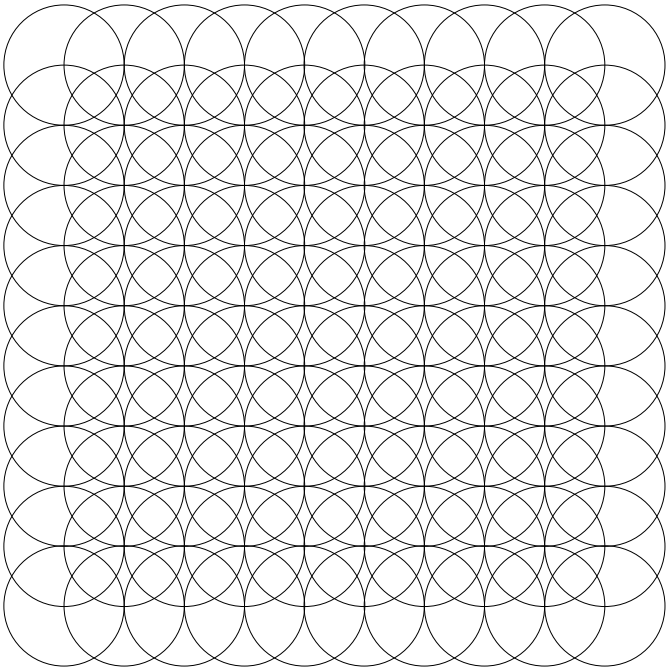
In[2]:=
```
(* 14.2 *) Graphics[Table[Style[Circle[{0, 0}, r], RandomColor[]], {r, 1, 10}]]
```

Out[2]=



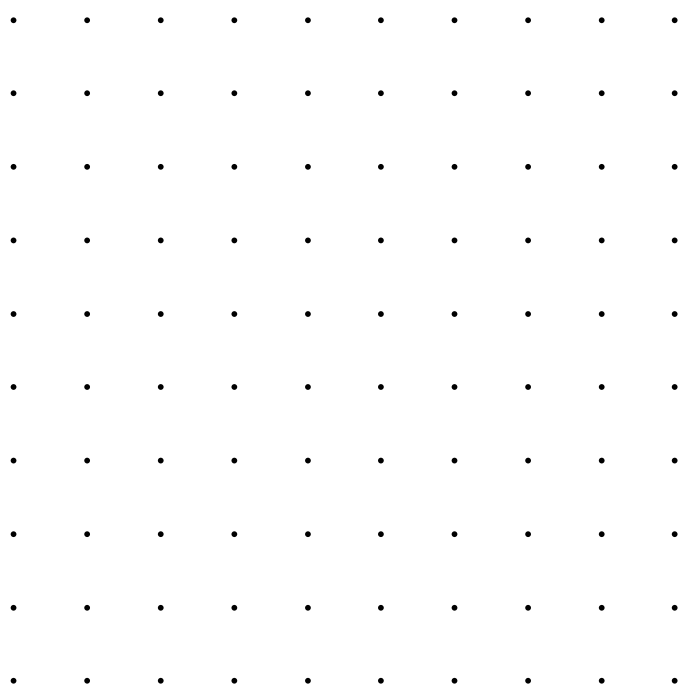
In[3]:=
```
(* 14.3 *) Graphics[Table[Circle[{i, j}], {i, 1, 10}, {j, 1, 10}]]
```

Out[3]=



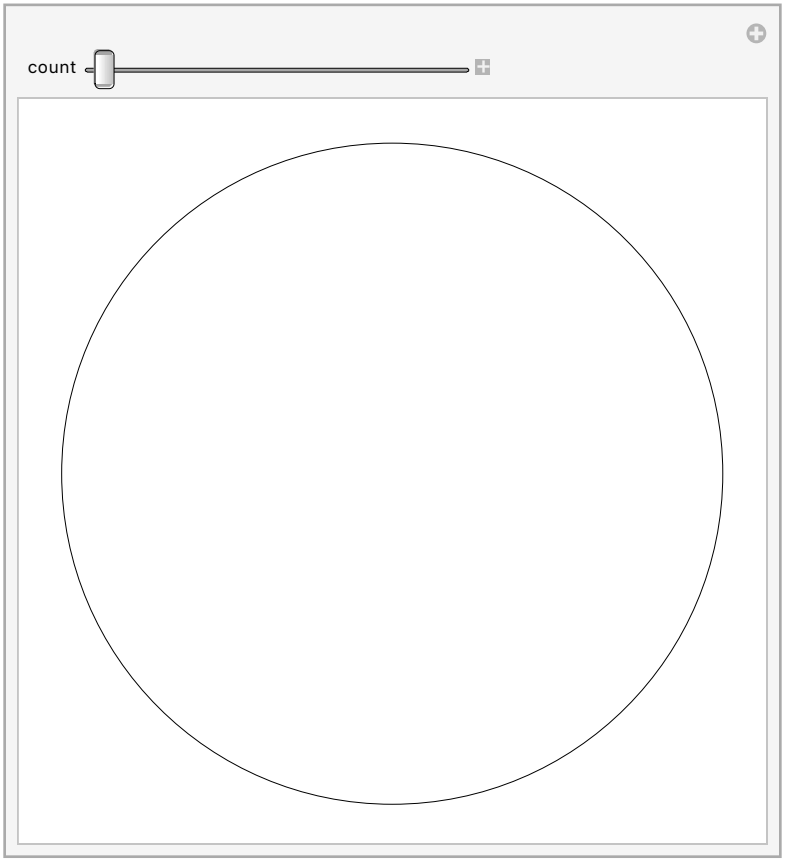
In[4]:=
```
(* 14.4 *) Graphics[Table[Point[{x, y}], {x, 1, 10}, {y, 1, 10}]]
```

Out[4]=



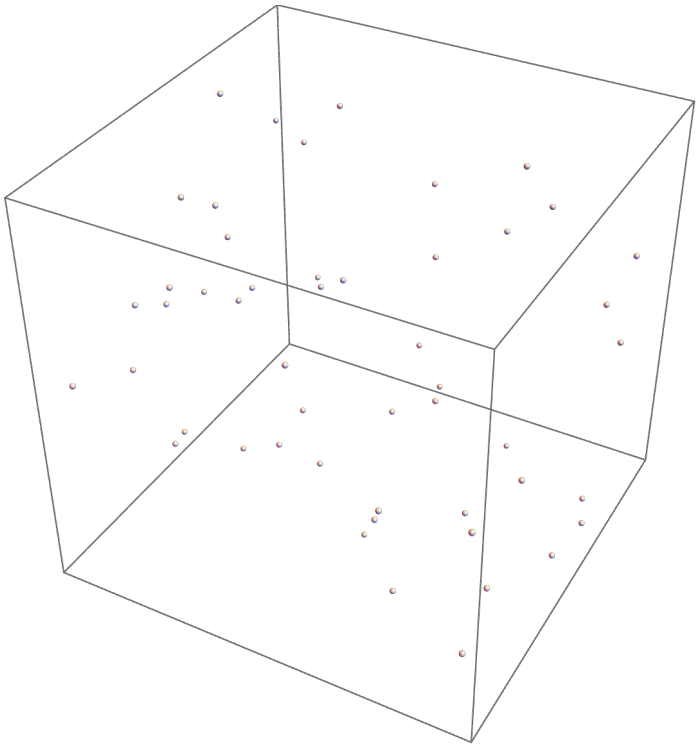
In[5]:=
```
(* 14.5 *) Manipulate[
 Graphics[Table[Circle[{0, 0}, radius], {radius, 1, count}]],
 {count, 1, 20}
]
```

Out[5]=



In[6]:=
```
(* 14.6 *) Graphics3D[Sphere[RandomInteger[150, {50, 3}]]]
```

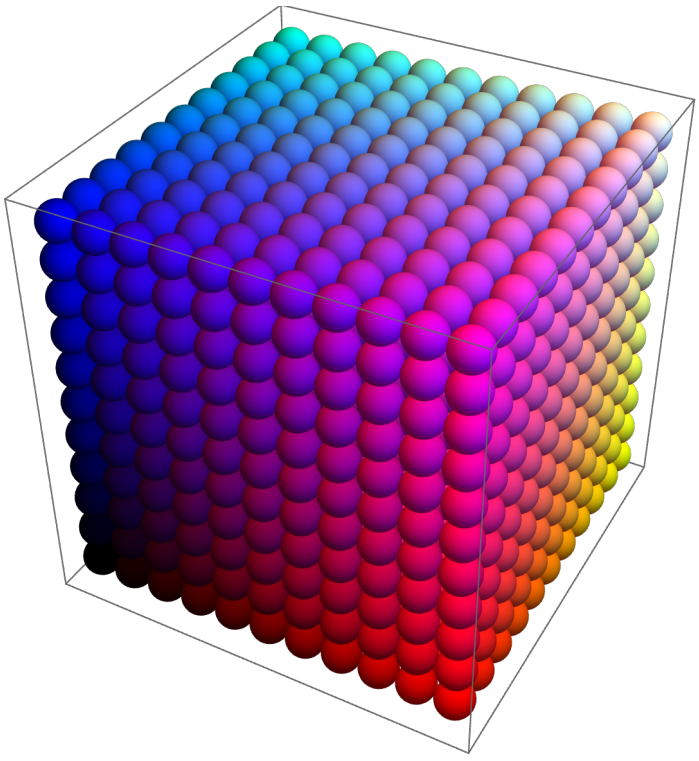
Out[6]=



I thought they were supposed to be tiny (like atoms of air), but maybe I misinterpreted.

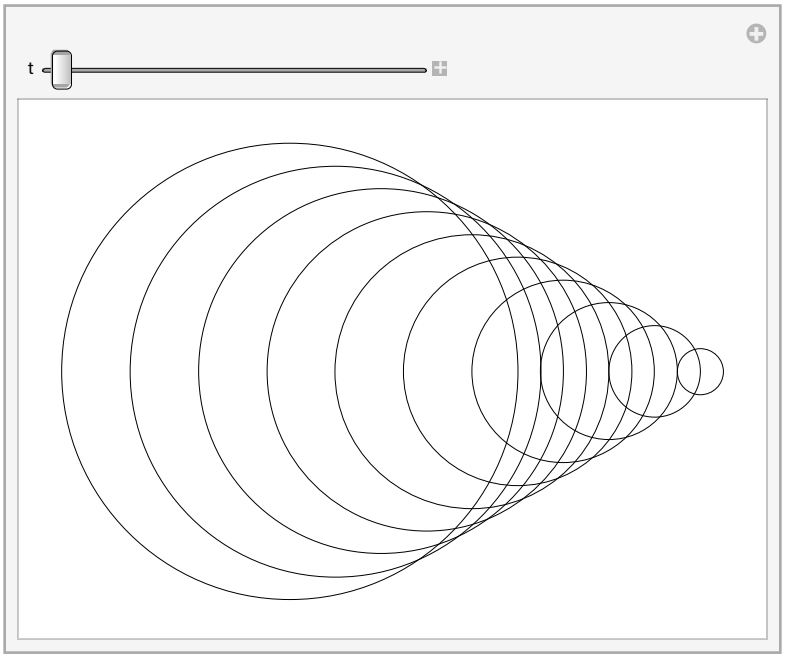
In[7]:=
```
(* 14.7 *) Graphics3D[Table[
  Style[Sphere[{x, y, z}, 1 / 2], RGBColor[x / 10, y / 10, z / 10]],
  {x, 0, 10}, {y, 0, 10}, {z, 0, 10}]]
```

Out[7]=



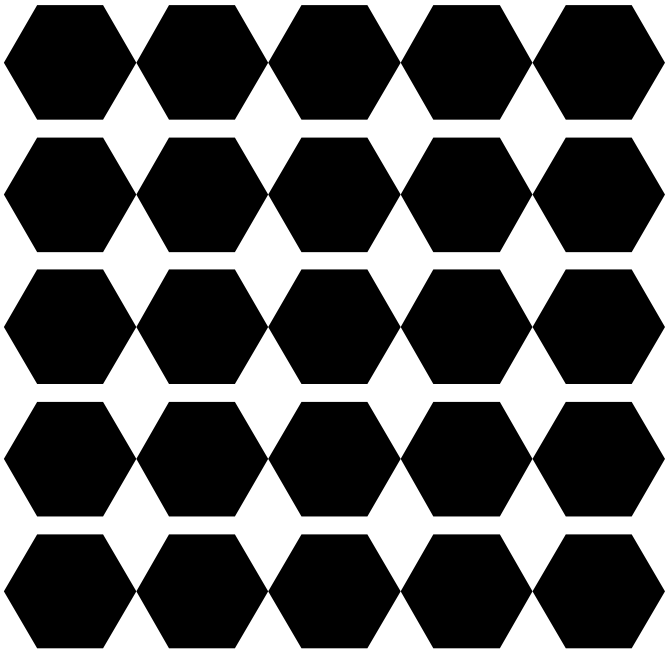
In[8]:=
```
(* 14.8 *) Manipulate[
 Graphics[
  Table[Circle[{t x, 0}, x], {x, 1, 10}]
 ],
 {t, -2, 2}
]
```

Out[8]=



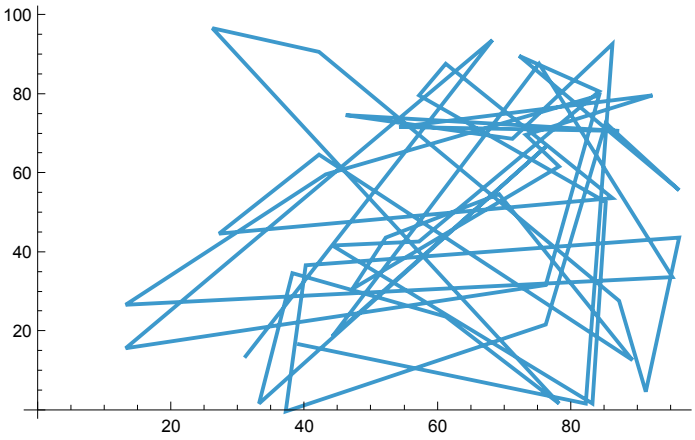
In[9]:=
```
(* 14.9 *) Graphics[
 Table[
  RegularPolygon[{x, y}, 1 / 2, 6],
  {x, 1, 5}, {y, 1, 5}]
]
```

Out[9]=



In[10]:=
```
(* 14.10 *) ListLinePlot[RandomInteger[100, {50, 2}]]
```

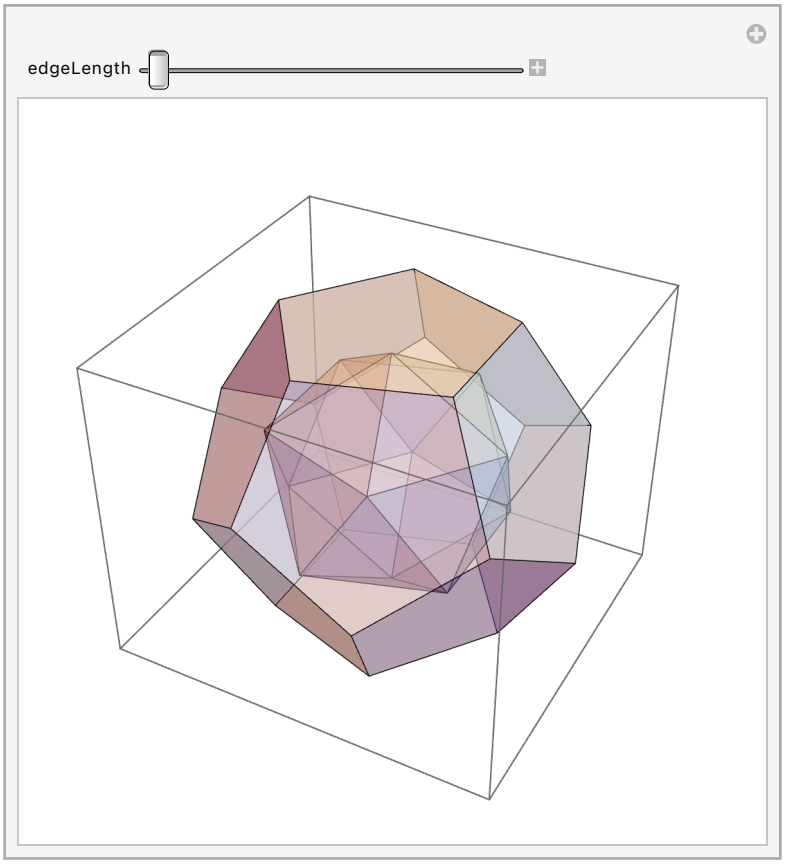
Out[10]=



?
Maybe I was meant to do a 3D version of this à la Graphics3D[Line[Table[RandomInteger[50, 3], 50]]]
?

In[11]:=
```
(* 14.11 *) Manipulate[
 Graphics3D[{
   Style[Icosahedron[{0, 0}, edgeLength], Opacity[0.5]],
   Style[Dodecahedron[{0, 0}, 1], Opacity[0.5]]
  }],
 {edgeLength, 1, 2}
]
```

Out[11]=



Exercises from *EIWL3* Section 17

In[12]:=
```
(* 17.1 *) UnitConvert[4.5 lb, "Kilograms"]
```

Out[12]=

2.04117 kg

In[13]:=
```
(* 17.2 *) UnitConvert[60.25 mi/h, "KilometersPerHour"]
```

Out[13]=

96.963 km/h

In[14]:=
```
(* 17.3 *)UnitConvert[ Eiffel Tower BUILDING ["Height"], "Miles"]
```

Out[14]=
```
0.205052 mi
```

In[15]:=
```
(* 17.4 *) Mount Everest MOUNTAIN ["Elevation"] / Eiffel Tower BUILDING ["Height"]
```

Out[15]=
```
26.8147
```

In[16]:=
```
(* 17.5 *) Earth PLANET ["Mass"] / Moon PLANETARY MOON ["Mass"]
```

Out[16]=
```
81.3
```

In[17]:=
```
(* 17.6 *) ¥ / $
```

Out[17]=
```
0.0065766
```

Was I meant to convert 2500 Yen, not 1 Yen?? Oops!!

In[18]:=
```
(* 17.7 *) UnitConvert[ 35 oz + 0.25 sh tn + 45 lb + 9 stone , "Kilograms"]
```

Out[18]=
```
305.353 kg
```

In[19]:=
```
(* 17.8 *) UnitConvert[ planets PLANETS ["DistanceFromEarth"], "LightMinutes"]
```

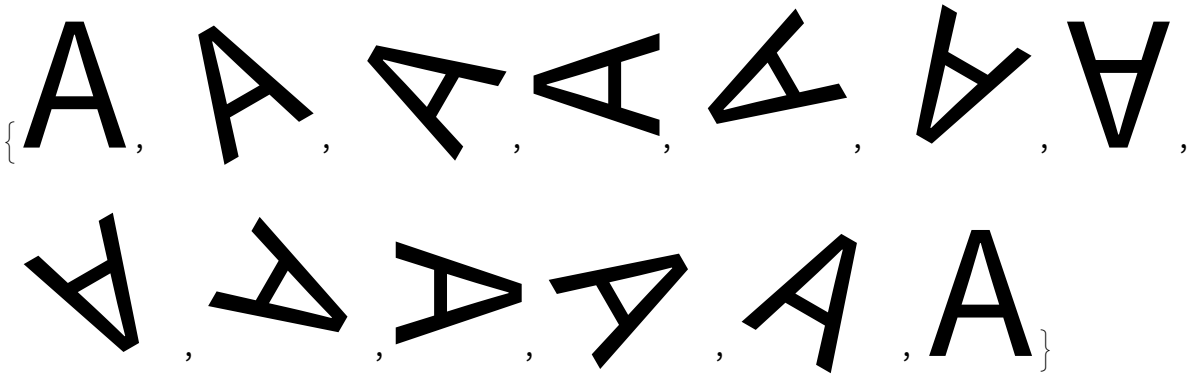
Out[19]=
```
{11.4195 light minutes , 3.6638 light minutes ,
 0. light minutes , 6.19701 light minutes , 39.2373 light minutes ,
 87.3814 light minutes , 162.485 light minutes , 255.37 light minutes}
```

In[20]:=
```
(* 17.9 *) Rotate["hello", 180 °, {0, 0}]
```

Out[20]=
```
olleh
```

In[21]:=
```
(* 17.10 *) Table[
 Rotate[Style["A", 100], angle, {0, 0}],
 {angle, 0 °, 360 °, 30 °}
]
```

Out[21]=

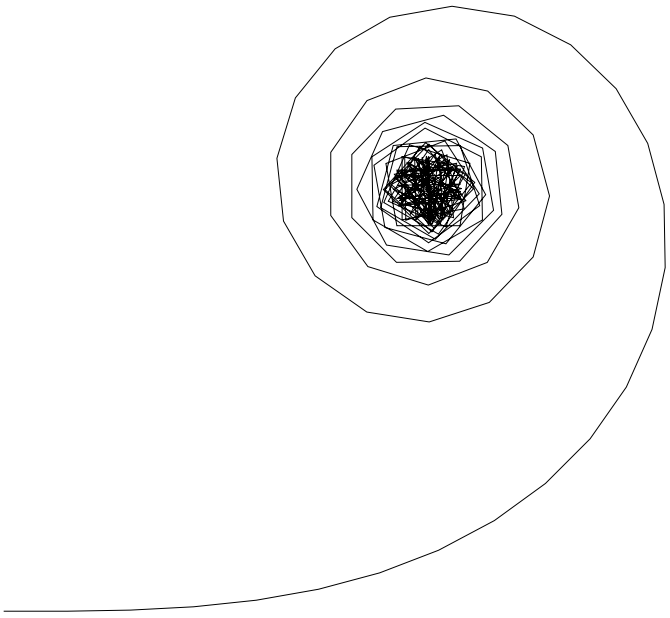


In[22]:=
```
(* 17.11 *) Manipulate[
 Rotate[ domestic cat SPECIES SPECIFICATION ["Image"], angle, {0, 0}],
 {angle, 0 °, 180 °}
]
```

Out[22]=

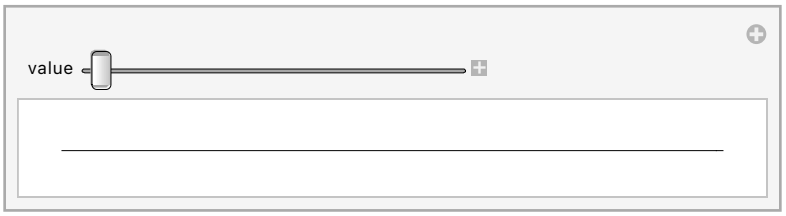
In[23]:=
```
(* 17.12 *) Graphics[Line[AnglePath[Range[0, 180] °]]]
```

Out[23]=



In[24]:=
```
(* 17.13 *) Manipulate[
 Graphics[Line[AnglePath[Table[value °, 100]]]],
 {value, 0, 360}
]
```

Out[24]=



In[25]:=
```
(* 17.14 *) Graphics[Line[AnglePath[IntegerDigits[2^10 000] 30 °]]]
```

Out[25]=