Brian — PS 5 — 2025-02-04 — Solution
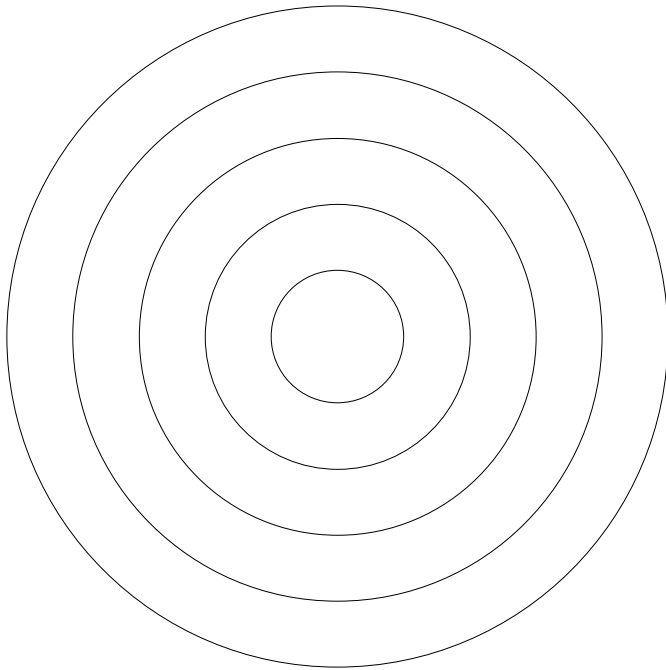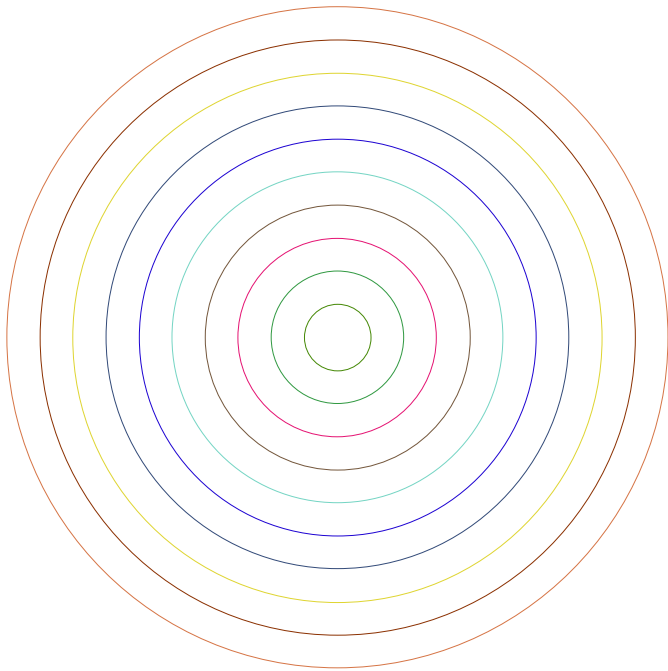
Exercises from *EIWL3* Section 14
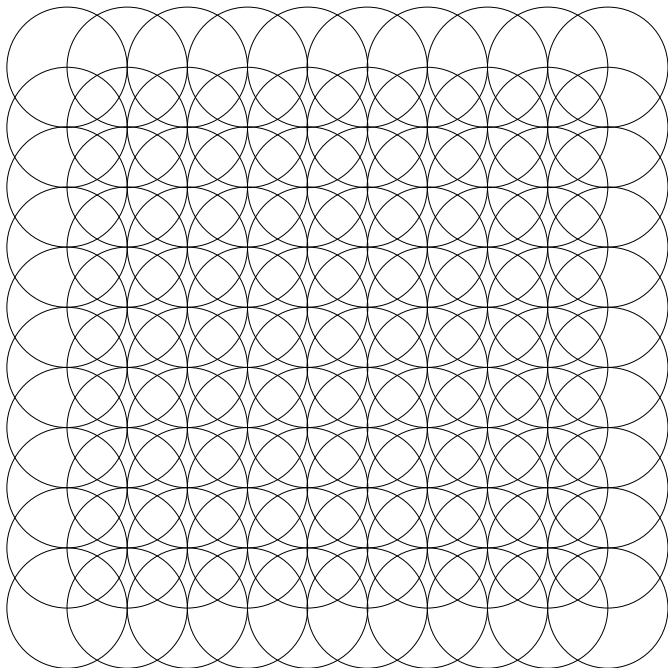
```
In[ ]:= (* 14.1 *) Graphics[Table[Circle[{0, 0}, r], {r, 1, 5}]]
```

Out[ ]=

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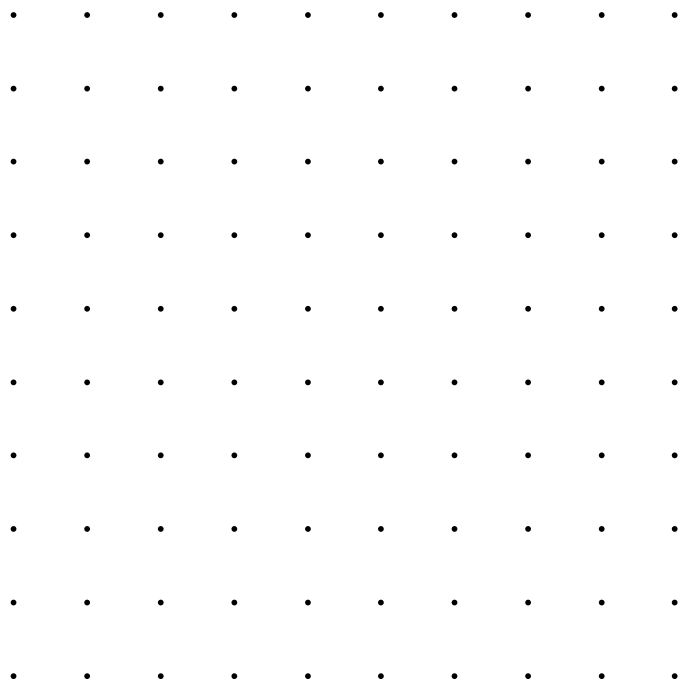
Out[ ]=

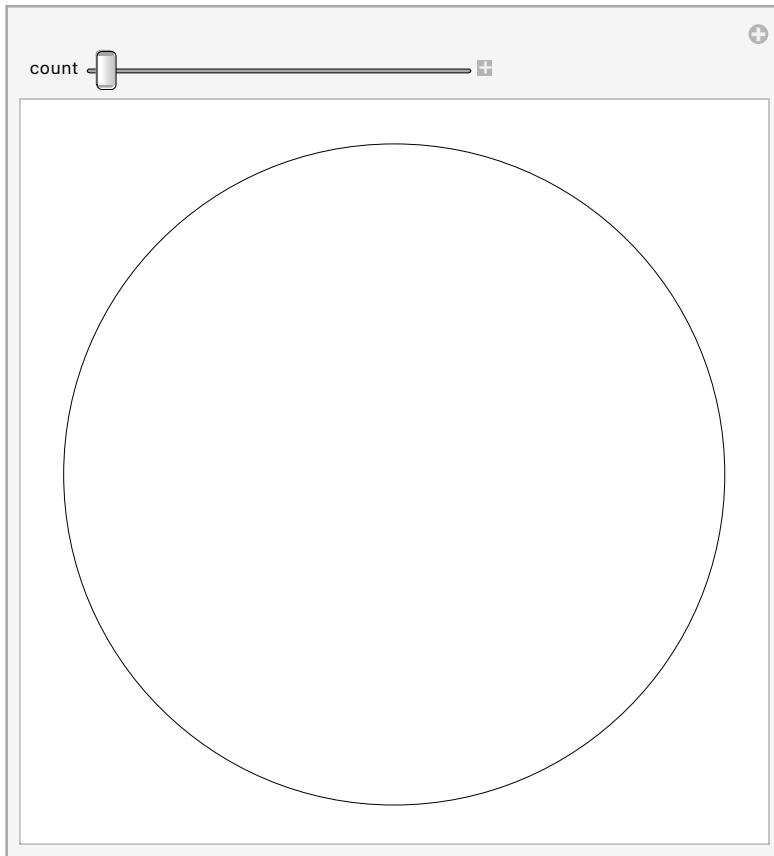*In[ ]:=* `(* 14.3 *) Graphics[Table[Circle[{i, j}], {i, 1, 10}, {j, 1, 10}]]`

Out[ ]=

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

Out[ ]=

·   ·   ·   ·   ·   ·   ·   ·   ·   ·

·   ·   ·   ·   ·   ·   ·   ·   ·   ·

·   ·   ·   ·   ·   ·   ·   ·   ·   ·

·   ·   ·   ·   ·   ·   ·   ·   ·   ·

·   ·   ·   ·   ·   ·   ·   ·   ·   ·

·   ·   ·   ·   ·   ·   ·   ·   ·   ·

·   ·   ·   ·   ·   ·   ·   ·   ·   ·

·   ·   ·   ·   ·   ·   ·   ·   ·   ·

·   ·   ·   ·   ·   ·   ·   ·   ·   ·
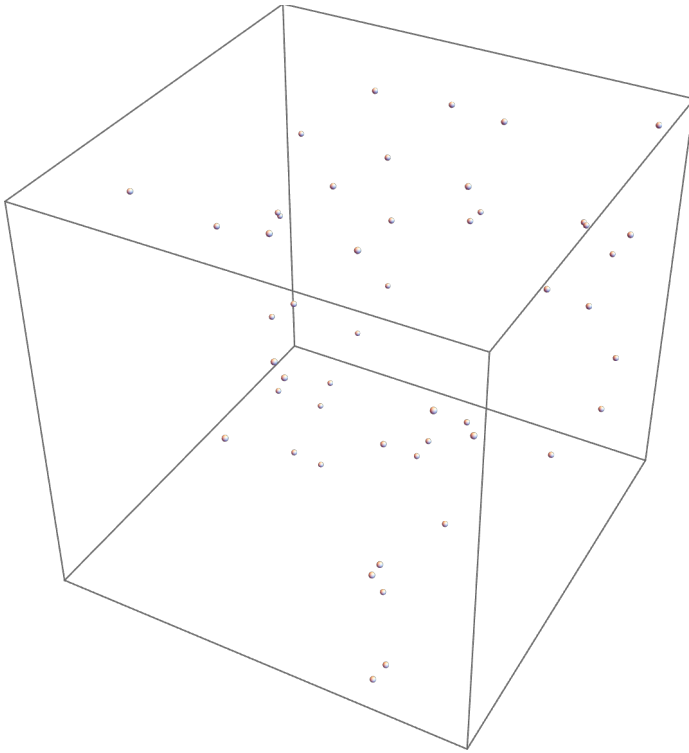
·   ·   ·   ·   ·   ·   ·   ·   ·   ·

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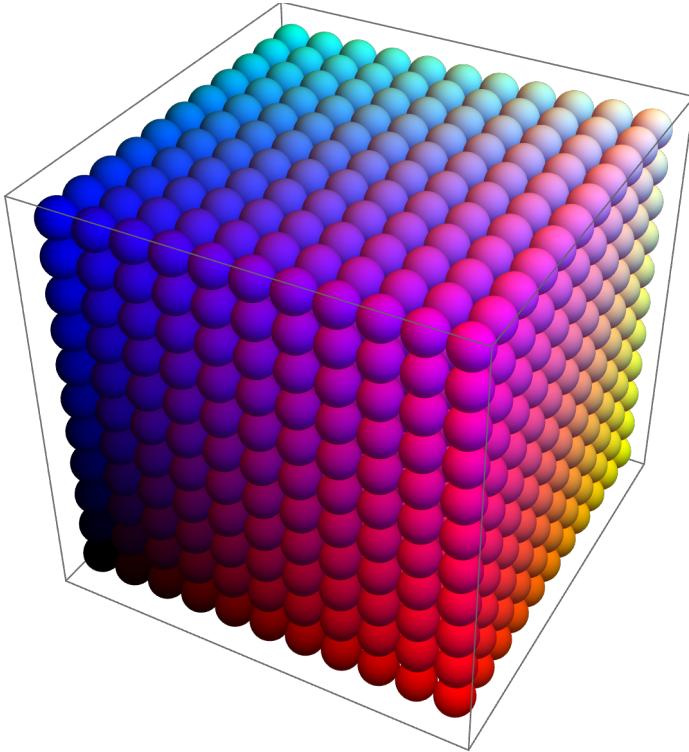
Out[ ]=

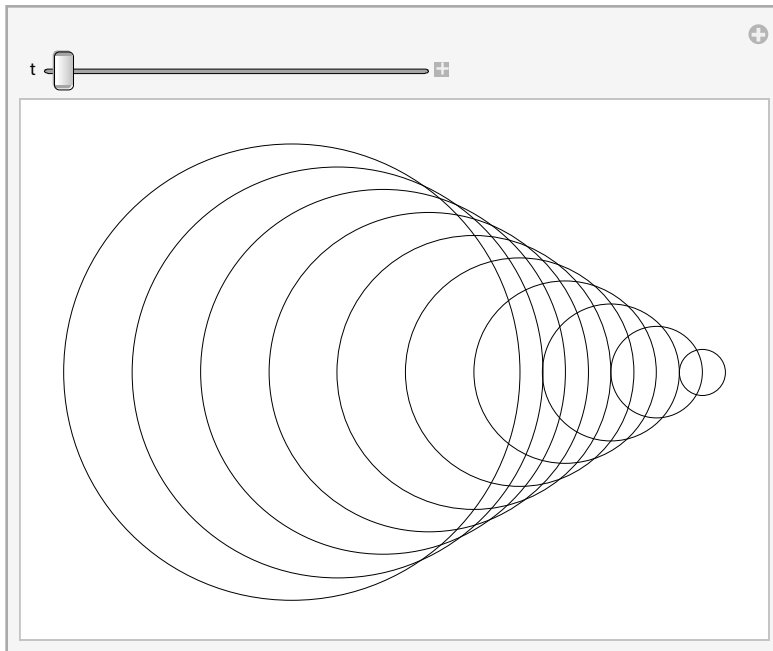*In[ ]:=* (* 14.6 *) Graphics3D[Sphere[RandomInteger[150, {50, 3}]]]

Out[ ]=

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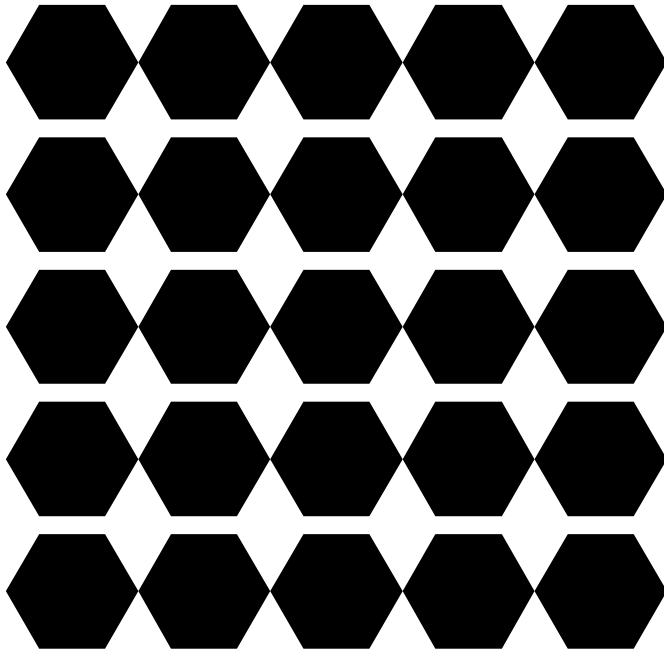`    {x, 0, 10}, {y, 0, 10}, {z, 0, 10}]]`

Out[ ]=

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

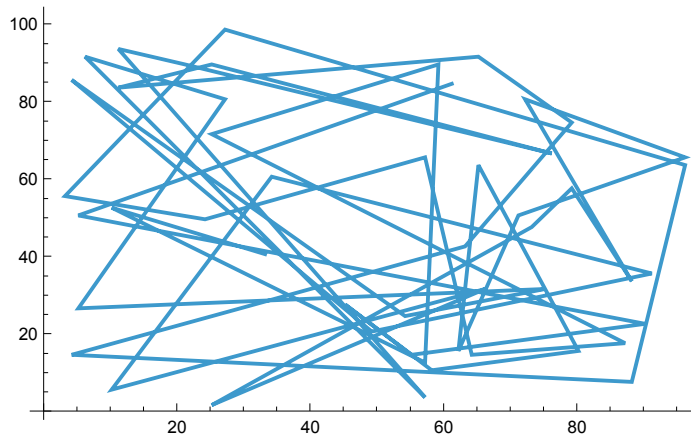*Out[ ]=*

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

Out[ ]=

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

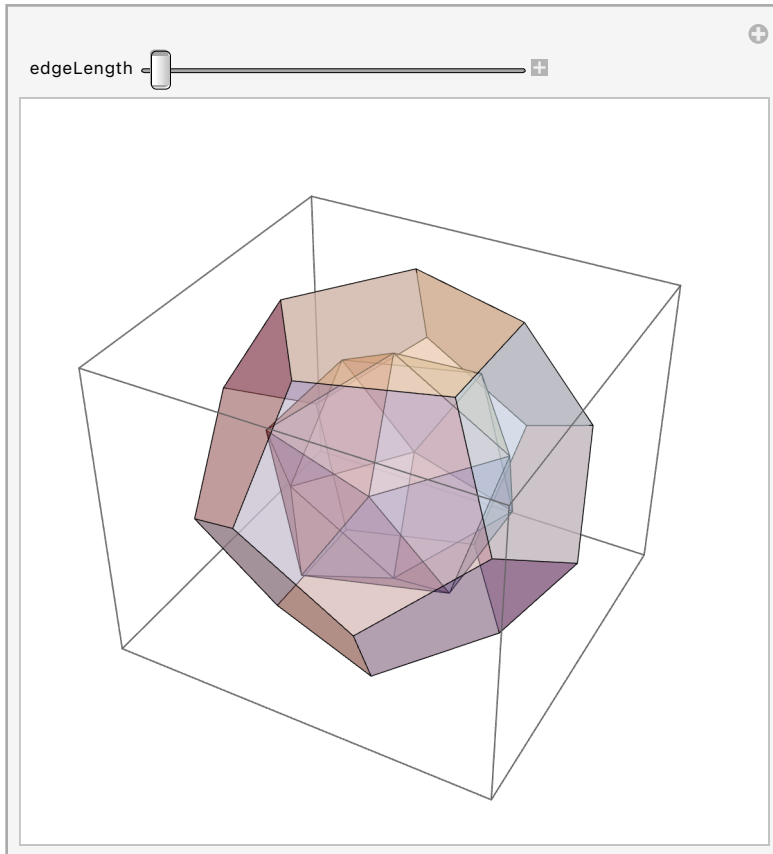*Out[ ]=*

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

Out[ ]=

Exercises from *EIWL3* Section 17

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

Out[ ]=

2.04117 kg

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

Out[ ]=

96.963 km/h

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

Out[ ]=

`0.205052 mi`

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

Out[ ]=

`26.8147`

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

Out[ ]=

`81.3`

*In[ ]:=* `(* 17.6 *)¥ / $`

Out[ ]=

`0.00646692`

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

Out[ ]=

`305.353 kg`

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

Out[ ]=

`{ 11.7191 light minutes , 4.12401 light minutes ,`

`  0. light minutes , 5.82796 light minutes , 38.2312 light minutes ,`

`  86.8646 light minutes , 161.353 light minutes , 254.655 light minutes }`

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

Out[ ]=

oʅʅəɥ

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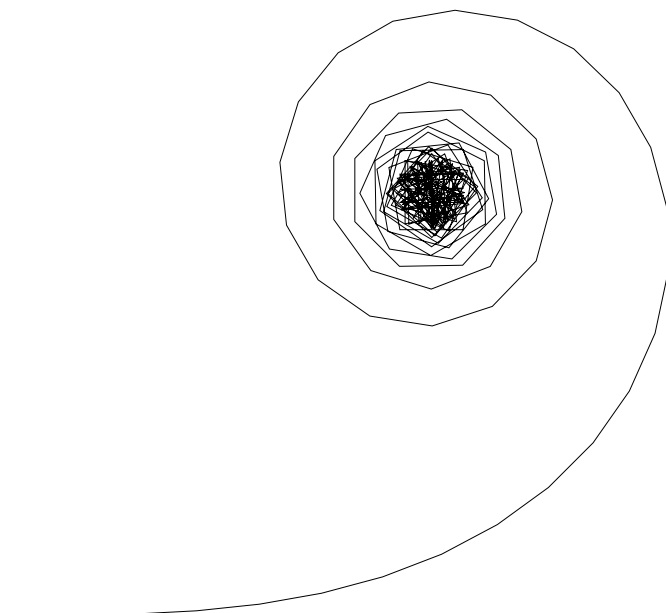`  {angle, 0 °, 360 °, 30 °}`
`  ]`

Out[ ]=
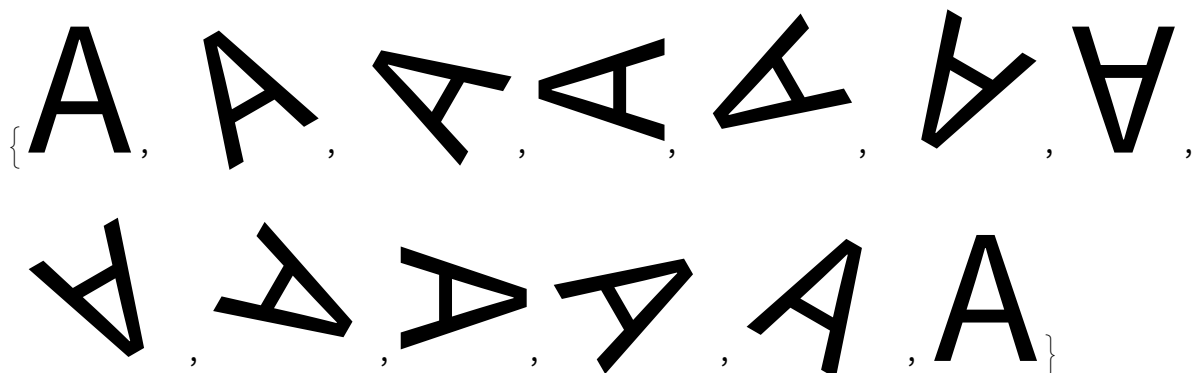
In[ ]:= `(* 17.11 *) Manipulate[`

  `Rotate[ [domestic cat  SPECIES SPECIFICATION] ["Image"], angle, {0, 0}],`

  `{angle, 0 °, 180 °}`

  `]`

Out[ ]=

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

Out[ ]=

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

Out[ ]=

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

Out[ ]=