

# Brian — PS 5 — 2025-02-04 — Solution

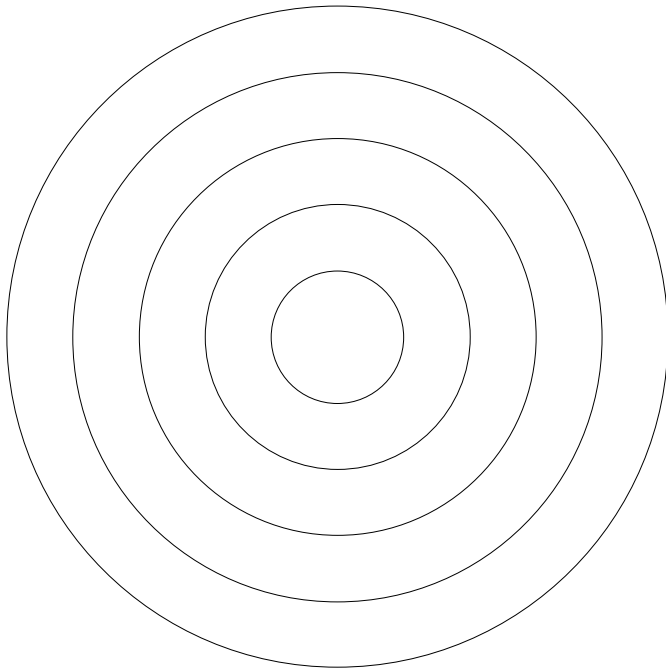
*EIWL3* Sections 14 and 17

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## Exercises from *EIWL3* Section 14

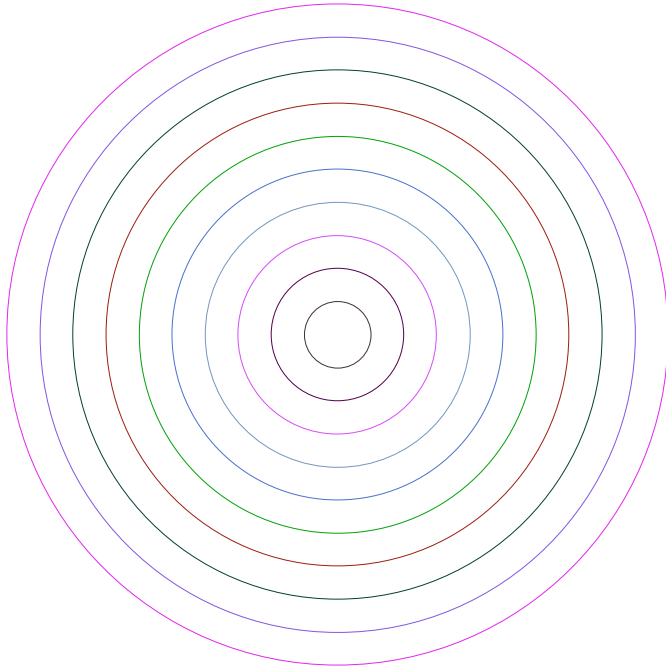
```
In[1]:= (* 14.1 *) Graphics[Table[Circle[{0, 0}, r], {r, 1, 5}]]
```

Out[1]=



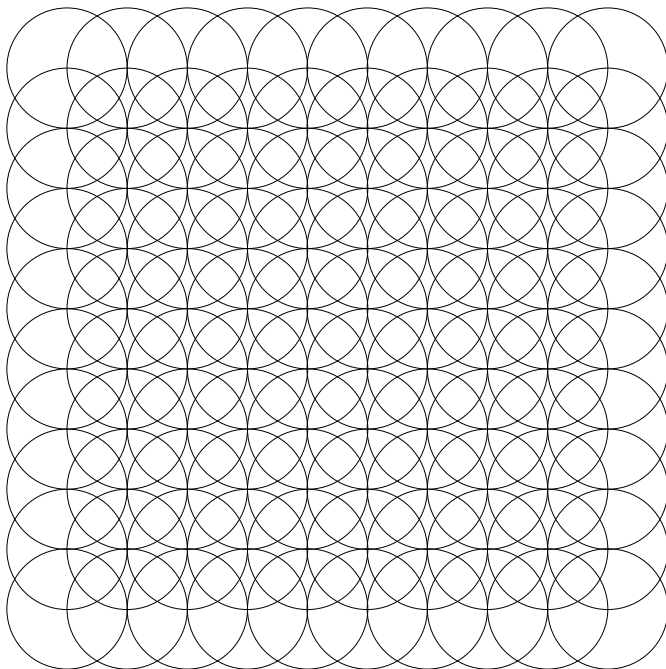
```
In[2]:= (* 14.2 *) Graphics[Table[Style[Circle[{0, 0}, r], RandomColor[]], {r, 1, 10}]]
```

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}]]
```

```
• • • • • • • • • •
```

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```

```
Out[4]=
```

```
• • • • • • • • • •
```

```
• • • • • • • • • •
```

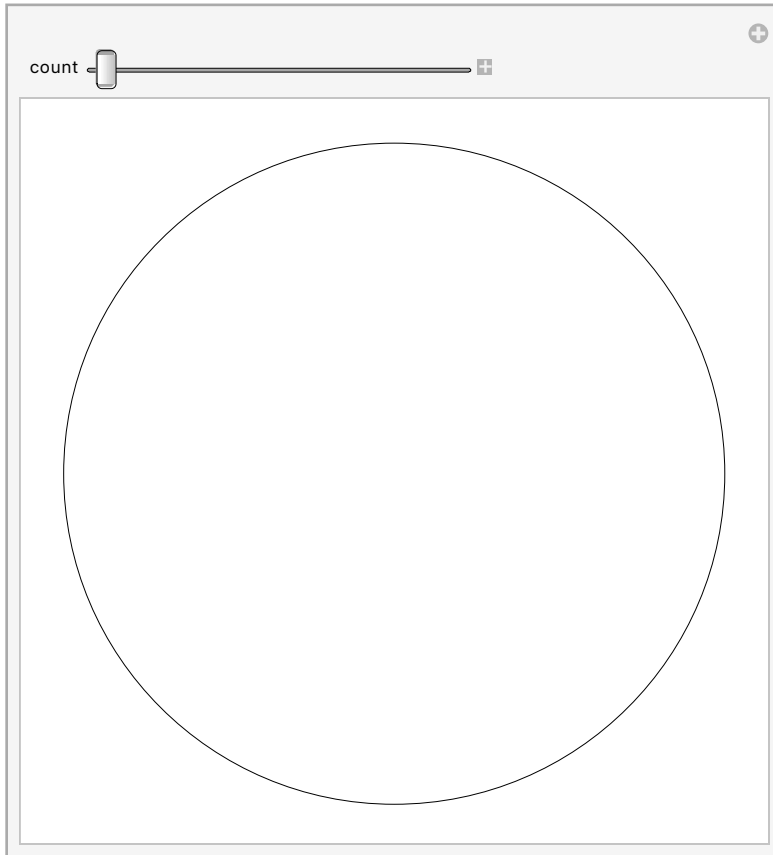
```
• • • • • • • • • •
```

```
• • • • • • • • • •
```

```
• • • • • • • • • •
```

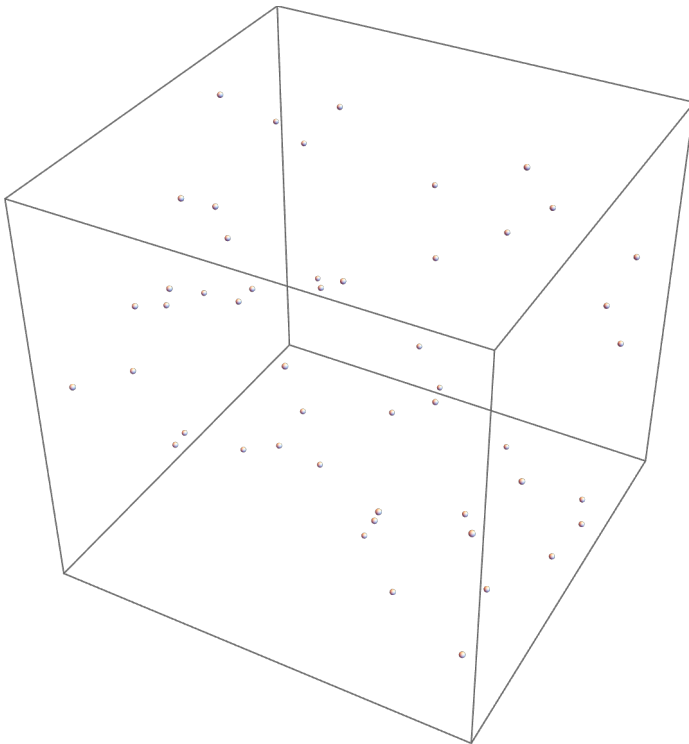
```
In[5]:= (* 14.5 *) Manipulate[  
  Graphics[Table[Circle[{0, 0}, radius], {radius, 1, count}]],  
  {count, 1, 20}  
]
```

Out[5]=



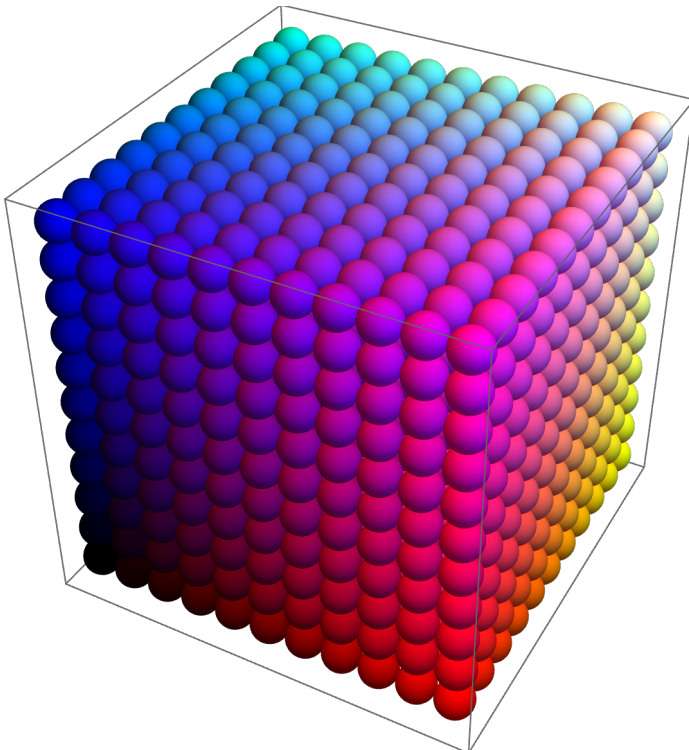
```
In[6]:= (* 14.6 *) Graphics3D[Sphere[RandomInteger[150, {50, 3}]]]
```

Out[6]=



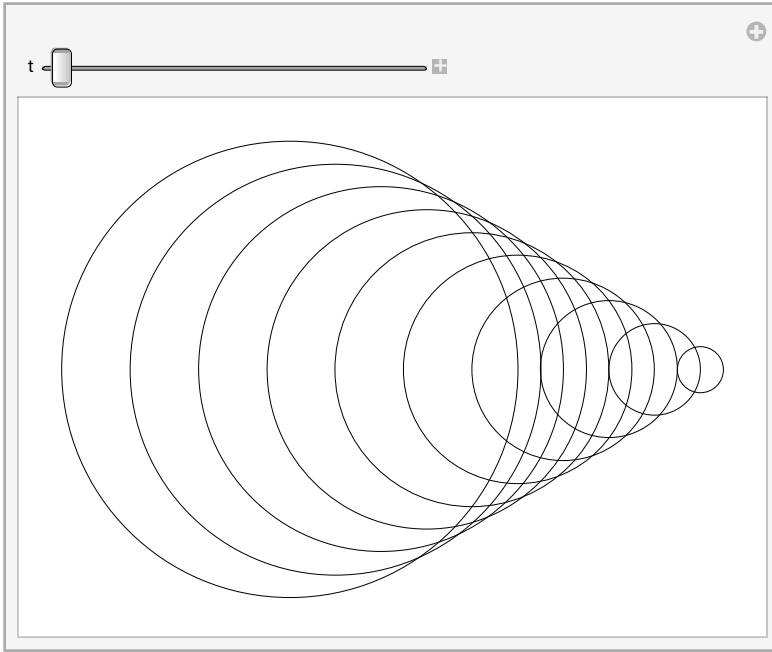
```
In[7]:= (* 14.7 *) Graphics3D[Table[
  Style[Sphere[{x, y, z}, 1/2], RGBColor[x/10, y/10, z/10]],
  {x, 0, 10}, {y, 0, 10}, {z, 0, 10}]]
```

Out[7]=



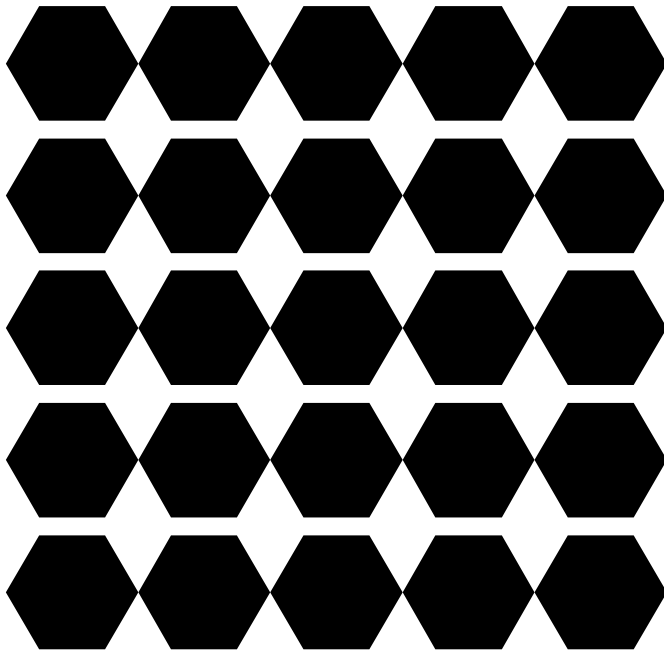
```
In[8]:= (* 14.8 *) Manipulate[  
  Graphics[  
    Table[Circle[{t x, 0}, x], {x, 1, 10}]  
  ],  
  {t, -2, 2}  
]
```

Out[8]=

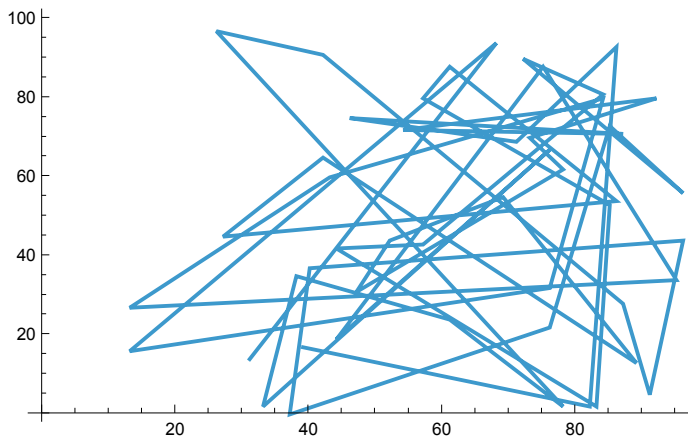


```
In[9]:= (* 14.9 *) Graphics[
  Table[
    RegularPolygon[{x, y}, 1/2, 6],
    {x, 1, 5}, {y, 1, 5}
  ]
]
```

Out[9]=



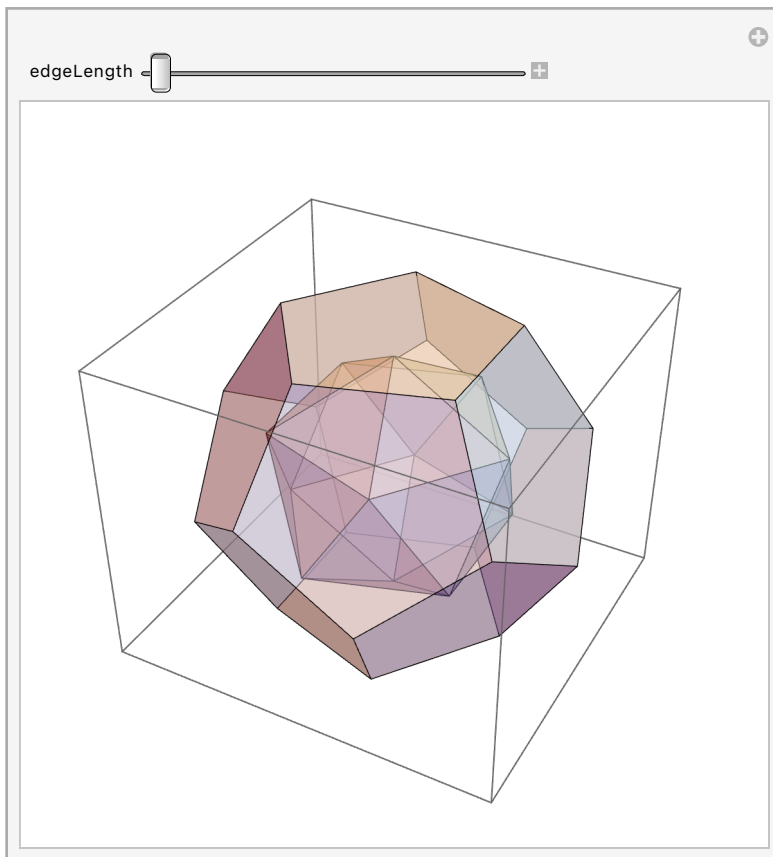
```
In[10]:= (* 14.10 *) ListLinePlot[RandomInteger[100, {50, 2}]]
Out[10]=
```



?  
 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"]
```

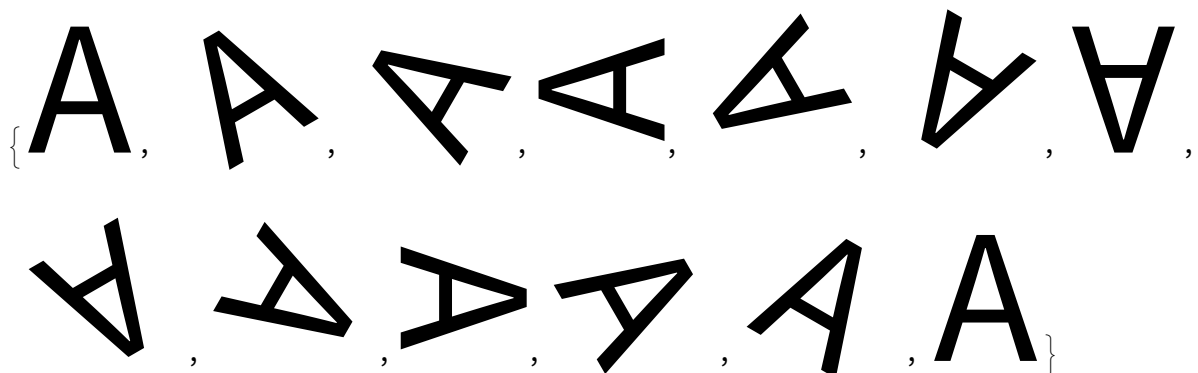
```
Out[19]= { 11.4195 light minutes, 3.6638 light minutes,
  0. light minutes, 6.19701 light minutes, 39.2373 light minutes,
  87.3814 light minutes, 162.485 light minutes, 255.37 light minutes }
```

```
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]=
```



The output shows a list of 12 rotated versions of the letter 'A'. The first row contains 7 letters: 'A' (0°), 'A' (30°), 'A' (60°), 'A' (90°), 'A' (120°), 'A' (150°), and 'A' (180°). The second row contains 5 letters: 'A' (210°), 'A' (240°), 'A' (270°), 'A' (300°), and 'A' (330°). The letters are displayed in a large, bold, black font.

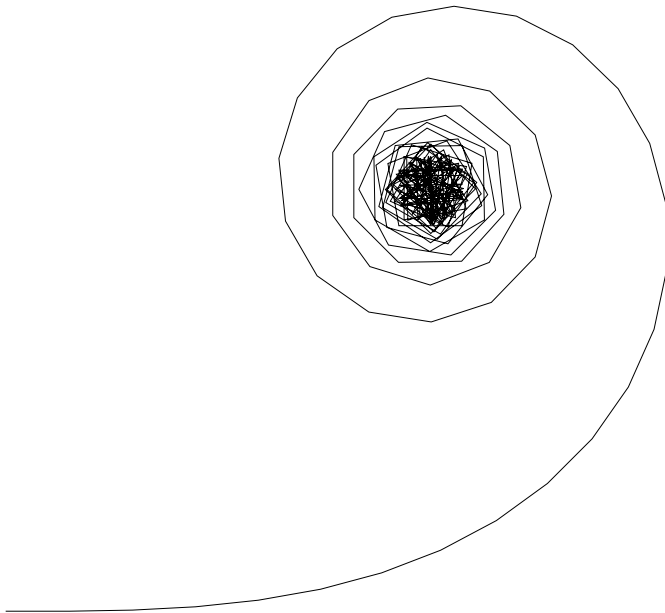
```
In[22]:= (* 17.11 *) Manipulate[
  Rotate[ domestic cat SPECIES SPECIFICATION ["Image"], angle, {0, 0}],
  {angle, 0°, 180°}
]
```

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[210000] 30 °]]]
```

Out[25]=

