Animated Ellipses in SVG on a 600 by 600 grid

To get started copy the code of this image into your editor:
http://steamcoded.org/lessons/grid600x600.svg.txt
Save the file as ellipses.svg and open the file in a browser.

1. Add a style attribute to the <svg> element: style="background-color:black;"

2. Append the following attributes to the <g> element with style="opacity:0.5;"
   Add styles: "fill:none;stroke:red;stroke-width:2px;" Change the opacity from 0.5 to 1.

3. Create a <ellipse> element with id="e1" centered at (300,300)
   with x-radius: 30 and y-radius: 295
   <ellipse id="e1" cx="300" cy="300" rx="30" ry="295" />

4. Add a <defs> element around the <ellipse> element, which will hide the ellipse and
   make it a definition for reuse.

5. Reuse the ellipse with id="e1" by adding a <use> element with attributes:
   xlink:href="#e1" transform="rotate(0,300,300)" style="stroke:red;"
   <use xlink:href="#e1" transform="rotate(0,300,300)" style="stroke:red;" />

6. Repeat step 5 rotating every 5 degrees about point (300,300) until reaching 175.
   Change the stroke color to be a rainbow sequence (hint: do first 7, then copy and paste)
   red, orange, yellow, lime, cyan, magenta, violet
   For example:
   <use xlink:href="#e1" transform="rotate(5,300,300)" style="stroke:orange;" />
   <use xlink:href="#e1" transform="rotate(10,300,300)" style="stroke:yellow;" />

7. Add an <animate> element as a child of the <ellipse> element as shown:
   <animate id="a1" attributeName="ry" values="295;30;295" dur="4s" begin="0s;a1.end" />
   Note: Add an ending </ellipse> and remove the / from the <ellipse> element
   This animates the y-radius of the ellipse from 295 to 30 back to 295 in 4 seconds 0 seconds
   after the image loads and when animation with id="a2" ends

8. Change the <animate> element begin attribute to start when a2 ends: begin="0s;a2.end"

9. Add a second <animate> element as a child of the <ellipse> element as shown:
   <animate id="a2" attributeName="rx" values="30;250;30" dur="4s" begin="a1.end" />
   This animates the x-radius of the ellipse from 30 to 250 back to 30 in 4 seconds when
   the animation with id="a1" ends

10. Change the style attribute of the first element from "display:initial" to
    "display:none" which hides the grid.