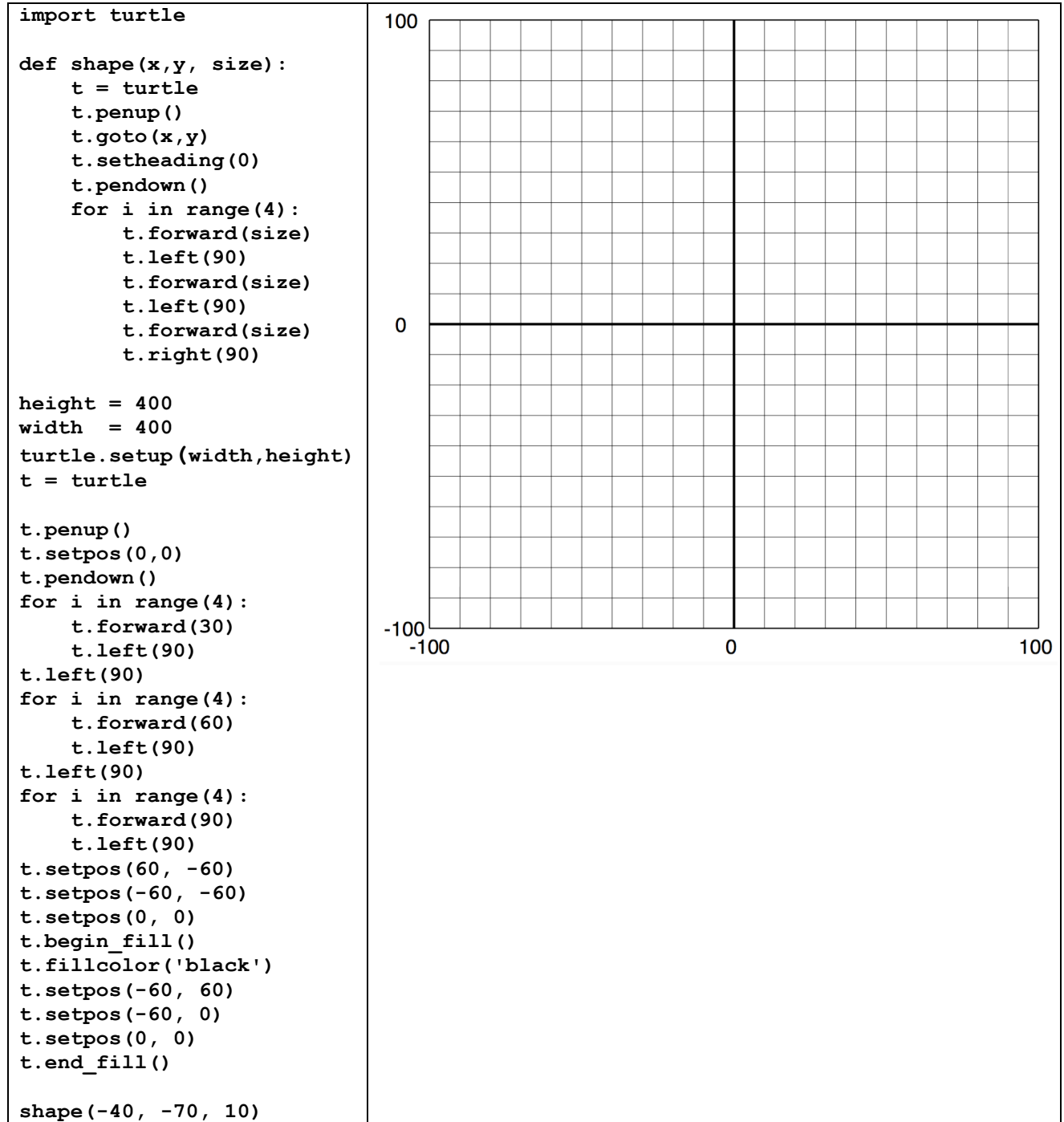


Name \_\_\_\_\_

**You are *encouraged* to work together with other students, but you must turn in your own copy of your work. Try not to use a computer!**

1. Here is a python program. What does it draw?

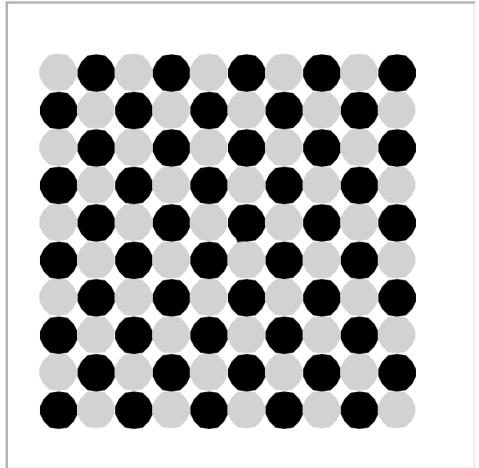


Name \_\_\_\_\_

2. Write a python program that uses turtle graphics to draw the following figure.  
 It consists of 10 rows of 'black' and 'gray' circles. The circles have radius 15, and the bottom-left circle begins at (x y) = (-150 -150).

```
import turtle

height = 400
width = 400
turtle.setup(width,height)
t = turtle
```



Here are some useful turtle methods:

<code>goto(10, 20)</code>	Moves the pen to position (10, 20)
<code>forward(100)</code>	Moves the pen forward 100 units
<code>setheading(90)</code>	'forward' is now up (0 = right, 90 = up, 180 = left, 270 = down)
<code>right(90)</code>	rotates the heading 90 degrees to the right
<code>left(90)</code>	rotates the heading 90 degrees to the left
<code>penup()</code>	Pen movement won't do any drawing
<code>pendown()</code>	Pen movement <b>will</b> draw something
<code>color('red')</code>	Lines will be drawn red, from here on
<code>pensize(5)</code>	Lines be drawn 5 pixels thick, from here on
<code>begin_fill()</code>	Start a filled polygon
<code>end_fill()</code>	Finish a filled polygon
<code>fillcolor('yellow')</code>	Polygons will be filled with yellow pixels