Circle challenges

Circle challenge 1 (hard)

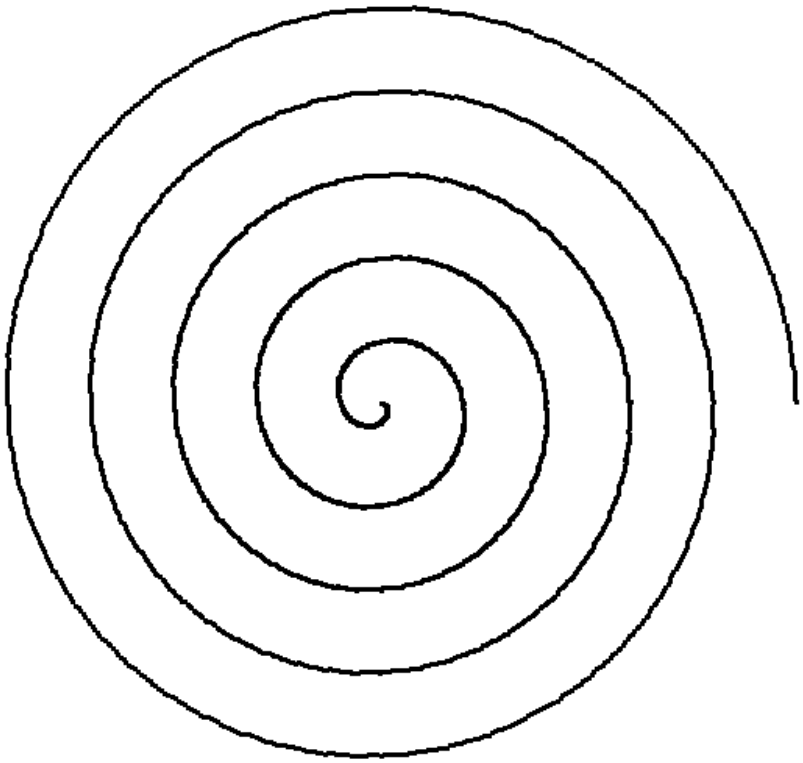
Take a look at the file `circle.py`.
The function
`circle` is responsible for transforming a percentage (from 0% to 100%) into a position to draw a point.
When you draw many points together (determined by the variable
`STEPS`) you get a circle.

Can you modify the function `circle` so that you draw a *spiral* (see below) instead of a circle?

Hint: the circle looks like a circle because its radius is *constant*.
What part of the formula inside the function
`circle` controls the radius?

Hint: a spiral is like a circle where the radius increases gradually when the percentage also increases.
In other words, can you add a “slider” to the radius?

Hint: what happens if you change the `2 * pi` inside the function `circle`?



Circle challenge 2 (medium)

To draw the circle, we use this `while` loop:

```
STEPS = 3000
step = 0
while step <= STEPS:
    percentage = step / STEPS
```

```
    x, y = circle(percentage)
    draw_pixel(screen, x, y, BLACK)
    step += 1
    pygame.display.flip()
```

Notice how we use the variable `BLACK`, defined at the top of the screen, to draw a black screen.
Can you draw a red circle/spiral? What about a blue one? What about a orange one?

Hint: go to Google and type “RGB colour picker”.

Circle challenge 3 (very hard)

After doing the circle challenge 2, can you draw a circle/spiral that changes colour gradually, like the one you see below?

Hint: create a function called `colour` that accepts a percentage and returns a colour in RGB.
Use it here:

```
STEPS = 3000
step = 0
while step <= STEPS:
    percentage = step / STEPS
    x, y = circle(percentage)
    use_colour = colour(percentage)  # <--
    draw_pixel(screen, x, y, use_colour)  # <--
    step += 1
    pygame.display.flip()
```