Kick Start 2022 - Round B

Analysis: Infinity Area

The idea is to use brute force. You can simulate the multiplication and division operations and stop when $\mathbf{R}$ reaches zero. As it is integer division, it is guaranteed that after a finite number of steps, $\mathbf{R}$ will eventually become zero. At first it might look like that it will exceed the TL, but the $2 \times \mathbf{A} \leq \mathbf{B}$ condition ensures that the value of $\mathbf{R}$ will be halved each time a division by $\mathbf{B}$ occurs. The area of a circle with radius $\mathbf{R}$ is $\pi\mathbf{R}^2$ which can be calculated in $O(1)$. So, if the value of $\mathbf{R}$ is halved with each division, it leads to a final time complexity of $O(\log(\mathbf{R}))$.

A pseudocode would look something like this:

```
ans = R*R
while R > 0:
  R *= A
  ans += R*R
  R /= B
  ans += R*R
return ans*pi
```