7 June 2024
David Dewan
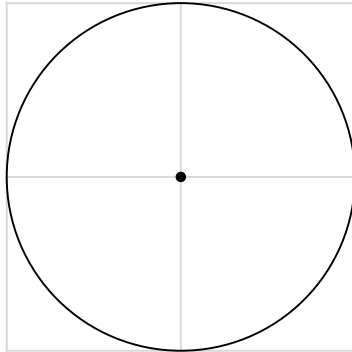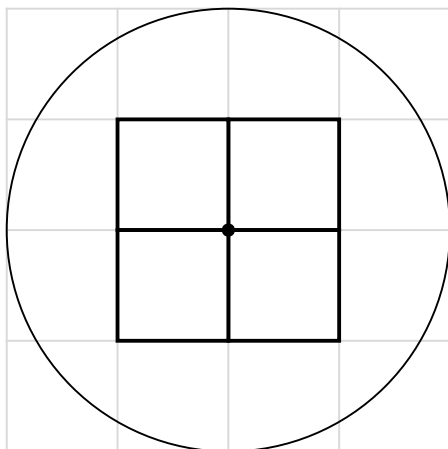
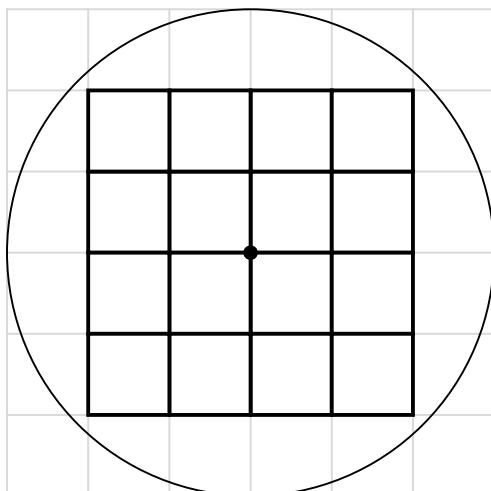On a unit square grid, the number of squares enclosed by a circle of radius n with center at (0,0)

radius = 1

total = 0

radius = 2

2

2

total = 4

radius = 3

4

4

4

4

total = 16

radius = 4

4

6

6

6

6

4

total = 32

radius = 5

6

8

8

8

8

8

8

6

total = 60

radius = 6
6
8
10
10
10
10
10
10
8
6
total = 88

radius = 7
6
8
10
12
12
12
12
12
12
10
8
6
total = 120

radius = 8
6
10
12
12
14
14
14
14
14
14
12
12
10
6
total = 164

radius = 9
8
10
12
14
16
16
16
16
16
16
16
16
14
12
10
8
total = 216

radius = 10
8
12
14
16
16
18
18
18
18
18
18
18
18
16
16
14
12
8
total = 276

radius = 11
8
12
14
16
18
18
20
20
20
20
20
20
20
18
18
16
14
12
8
total = 332

radius = 12
8
12
14
16
18
20
20
22
22
22
22
22
22
22
20
20
18
16
14
12
8
total = 392