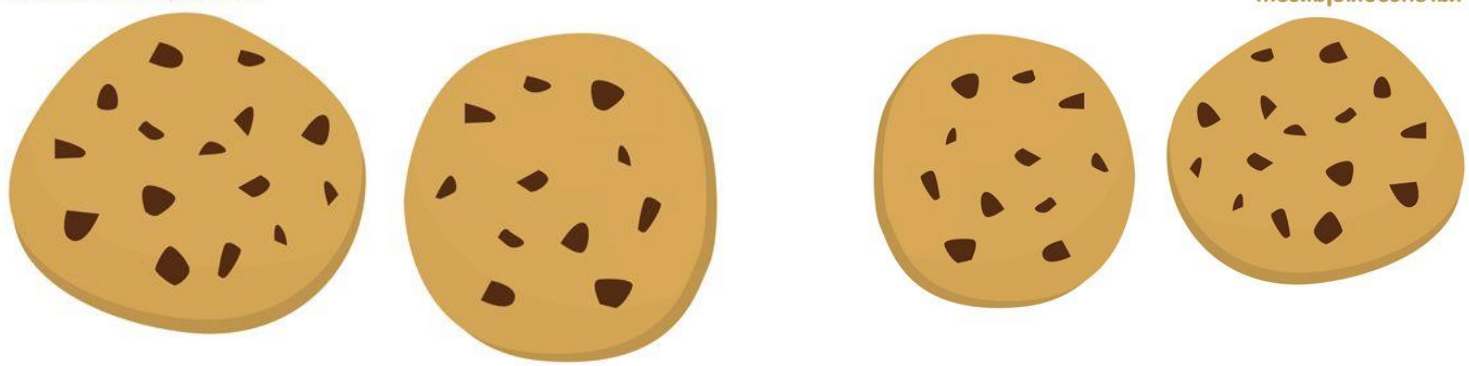
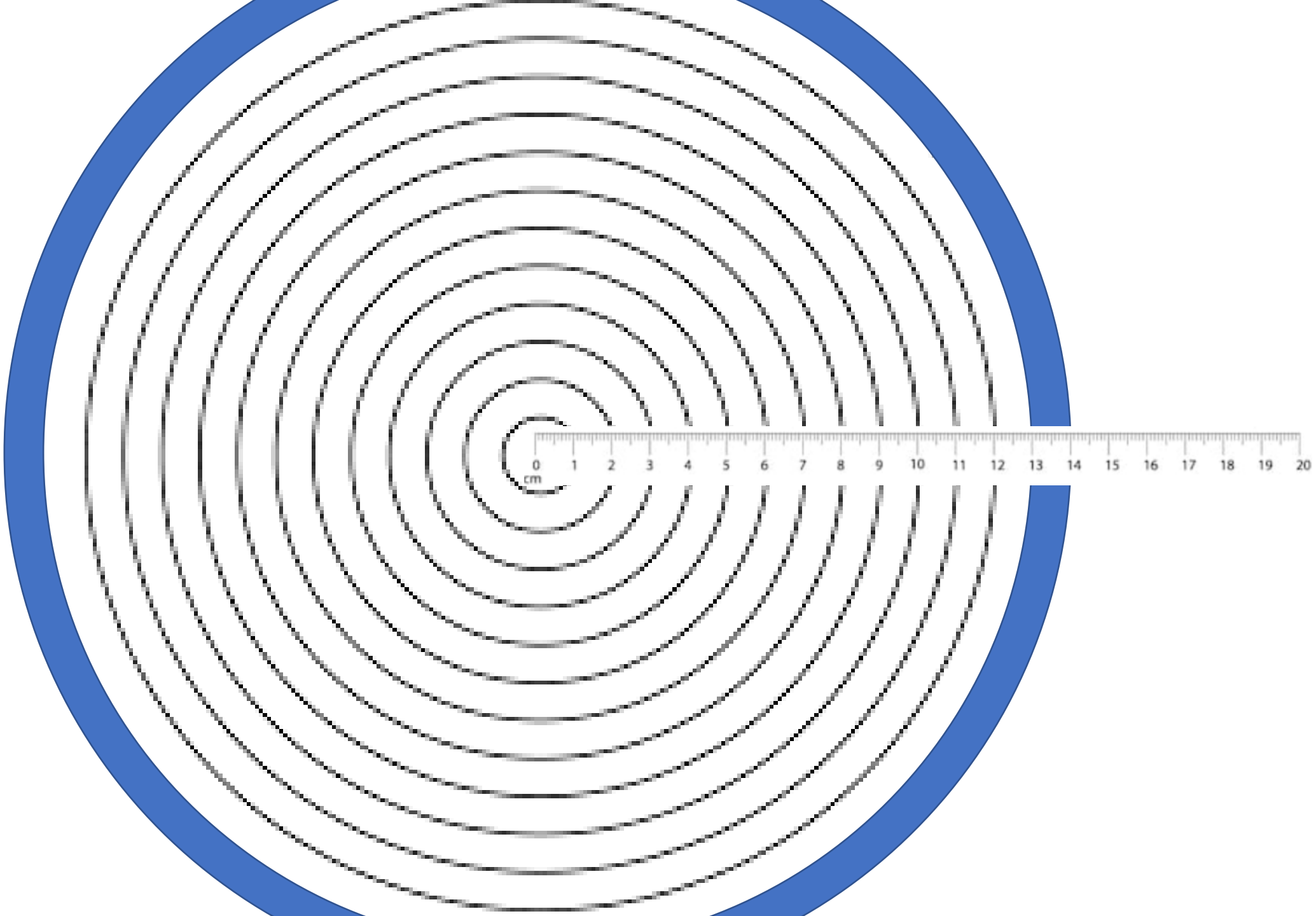
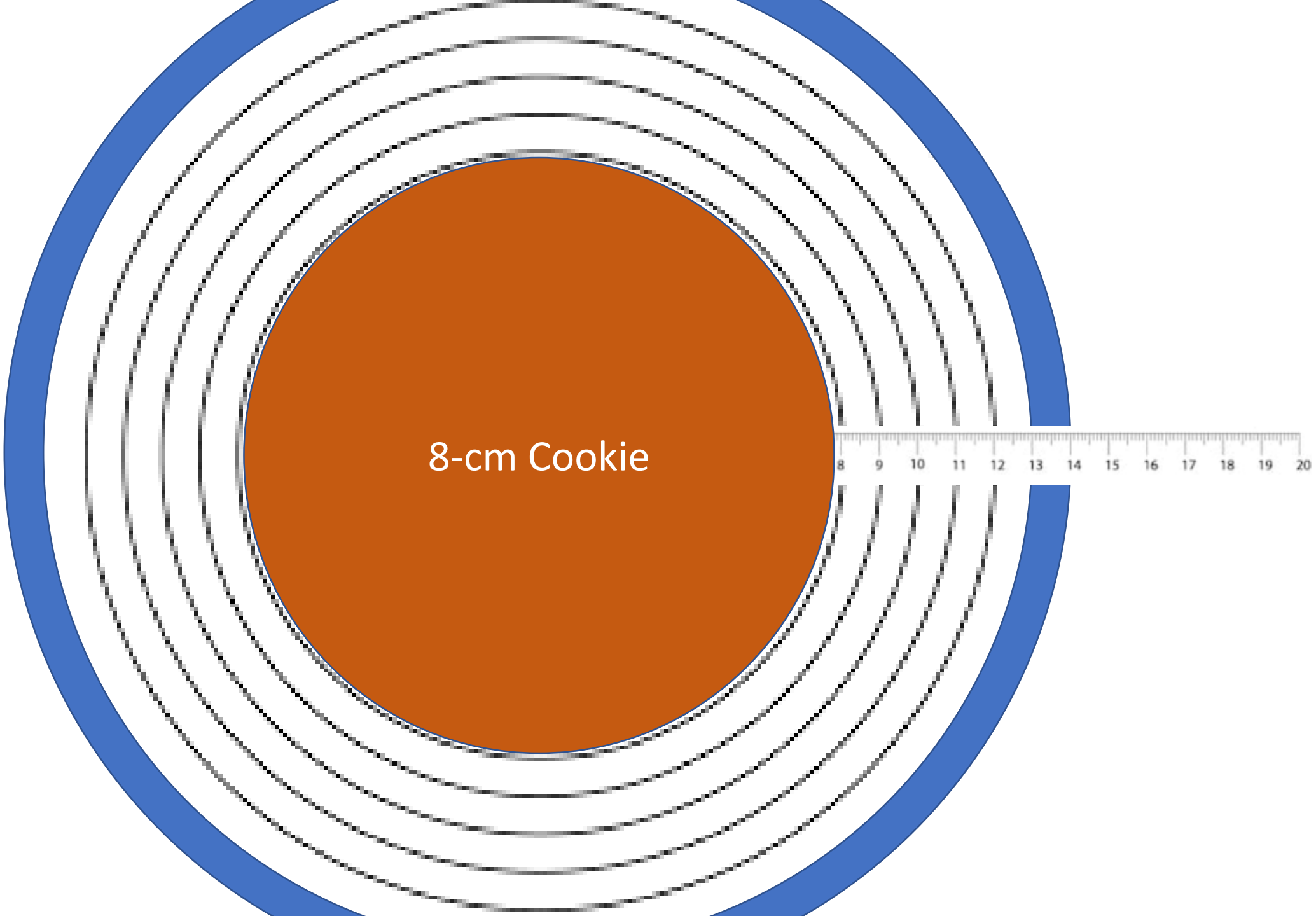


Two Pairs of Cookies

- ❑ One with average radius of 8 cm
- ❑ Other with average radius of 7 cm
- ❑ Which pair of cookies would you prefer?


0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
cm

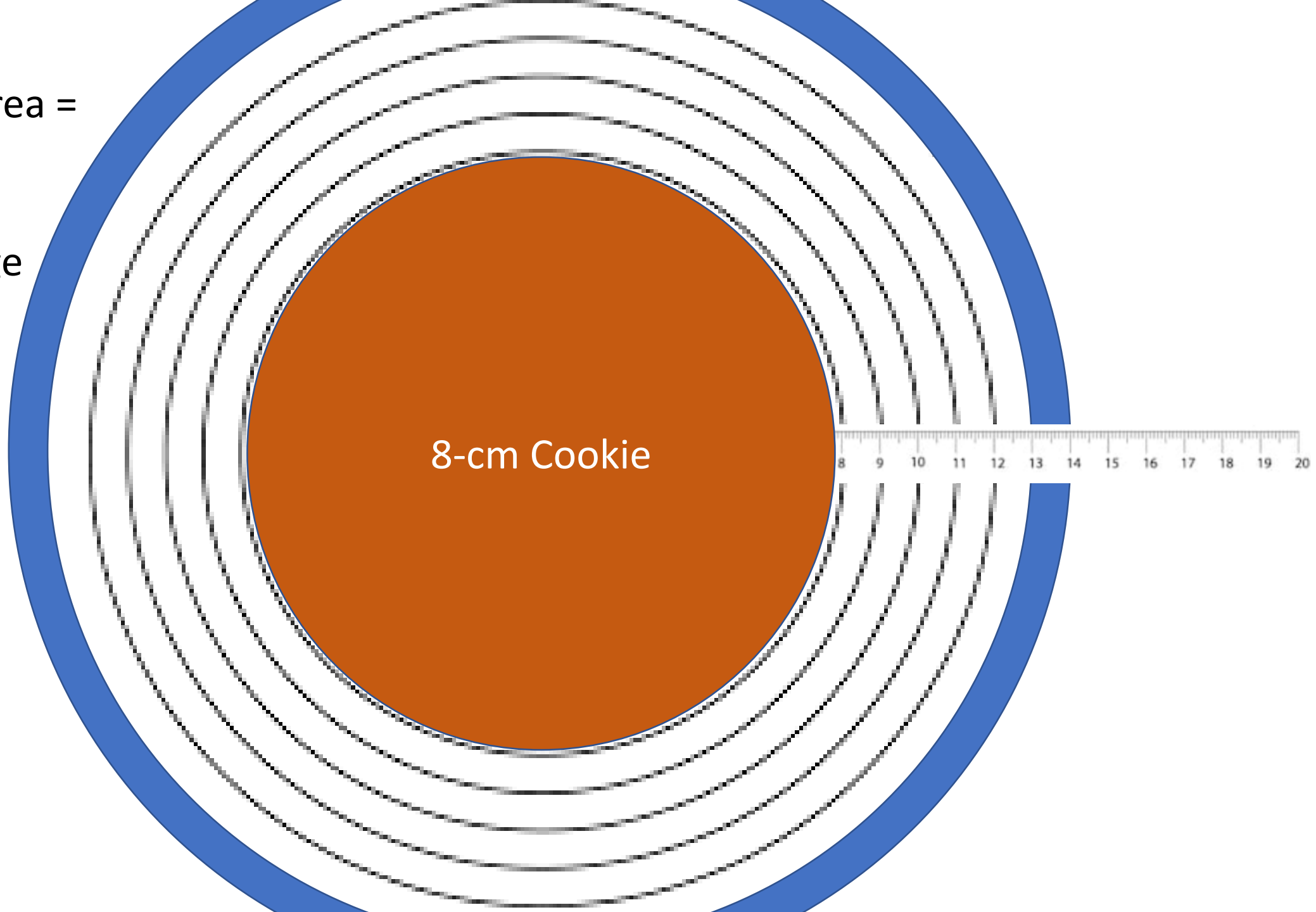

8-cm Cookie
8
9
10
11
12
13
14
15
16
17
18
19
20

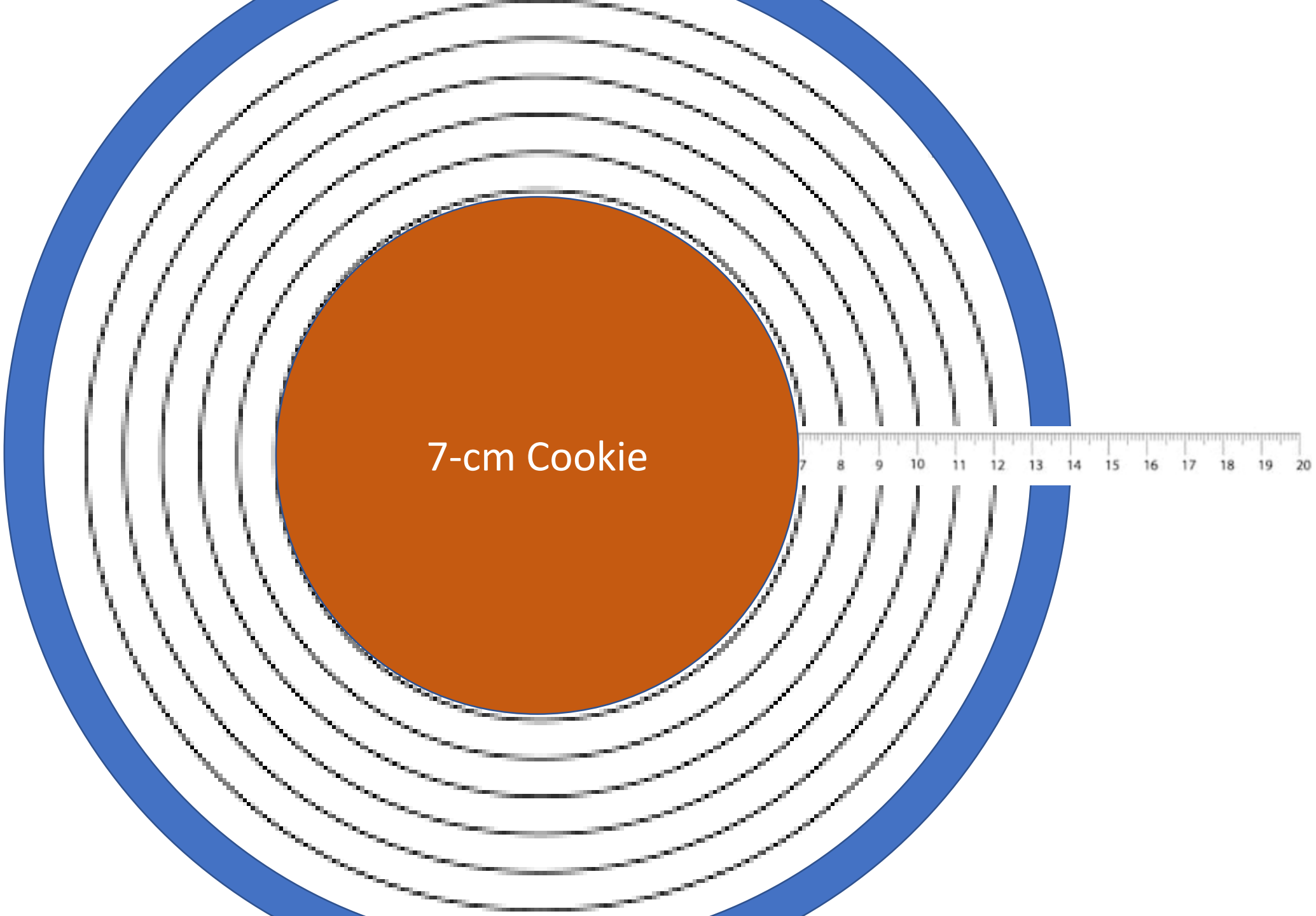
<u>2 Cookies</u>…

Total cookie area =

$2\pi 8^2 = 2\pi(64)$

Area of average Cookie = 64π



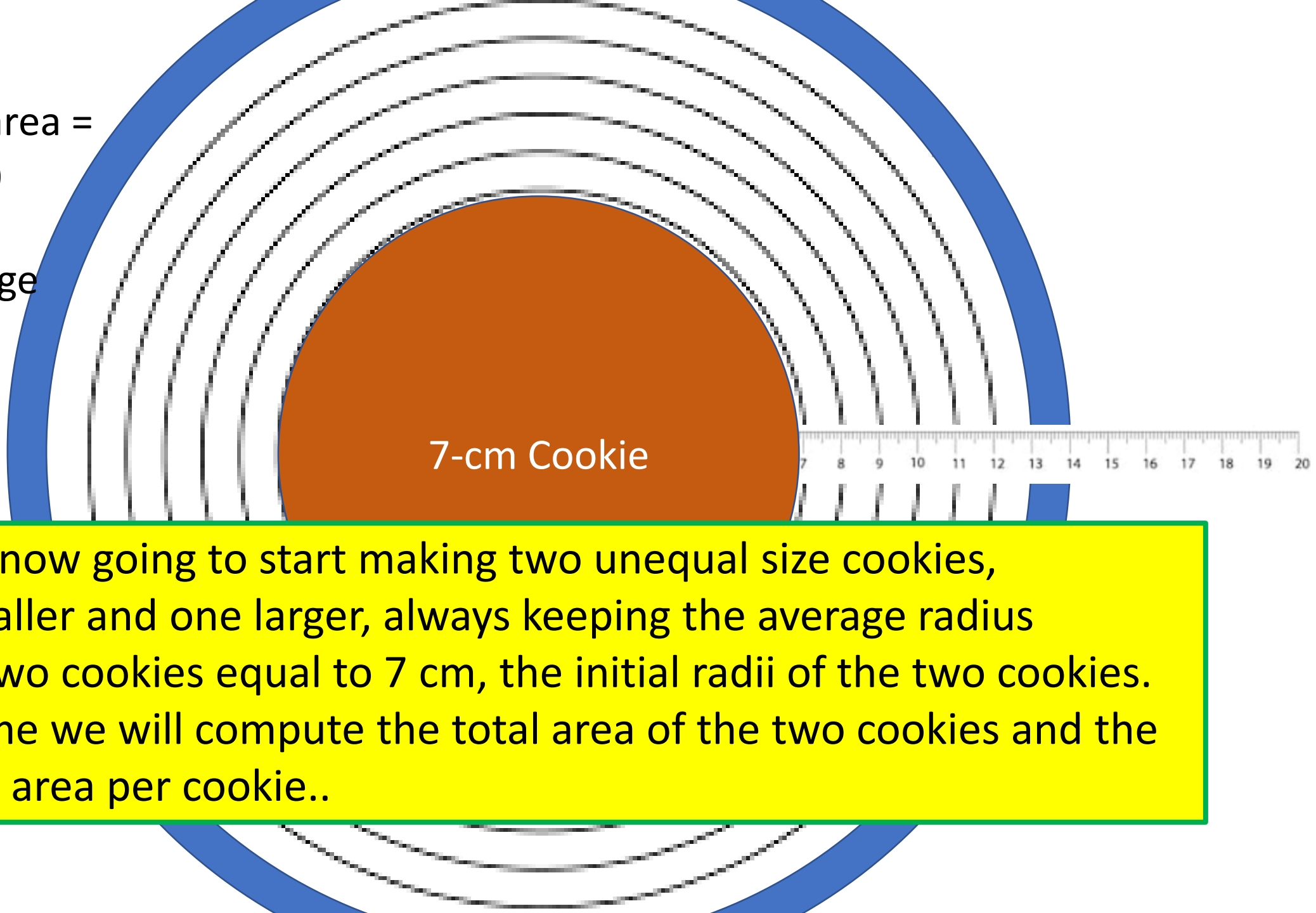

7-cm Cookie
7
8
9
10
11
12
13
14
15
16
17
18
19
20

2 Cookies…

Total cookie area =

$2\pi 7^2 = 2\pi(49)$

Area of average Cookie = 49π



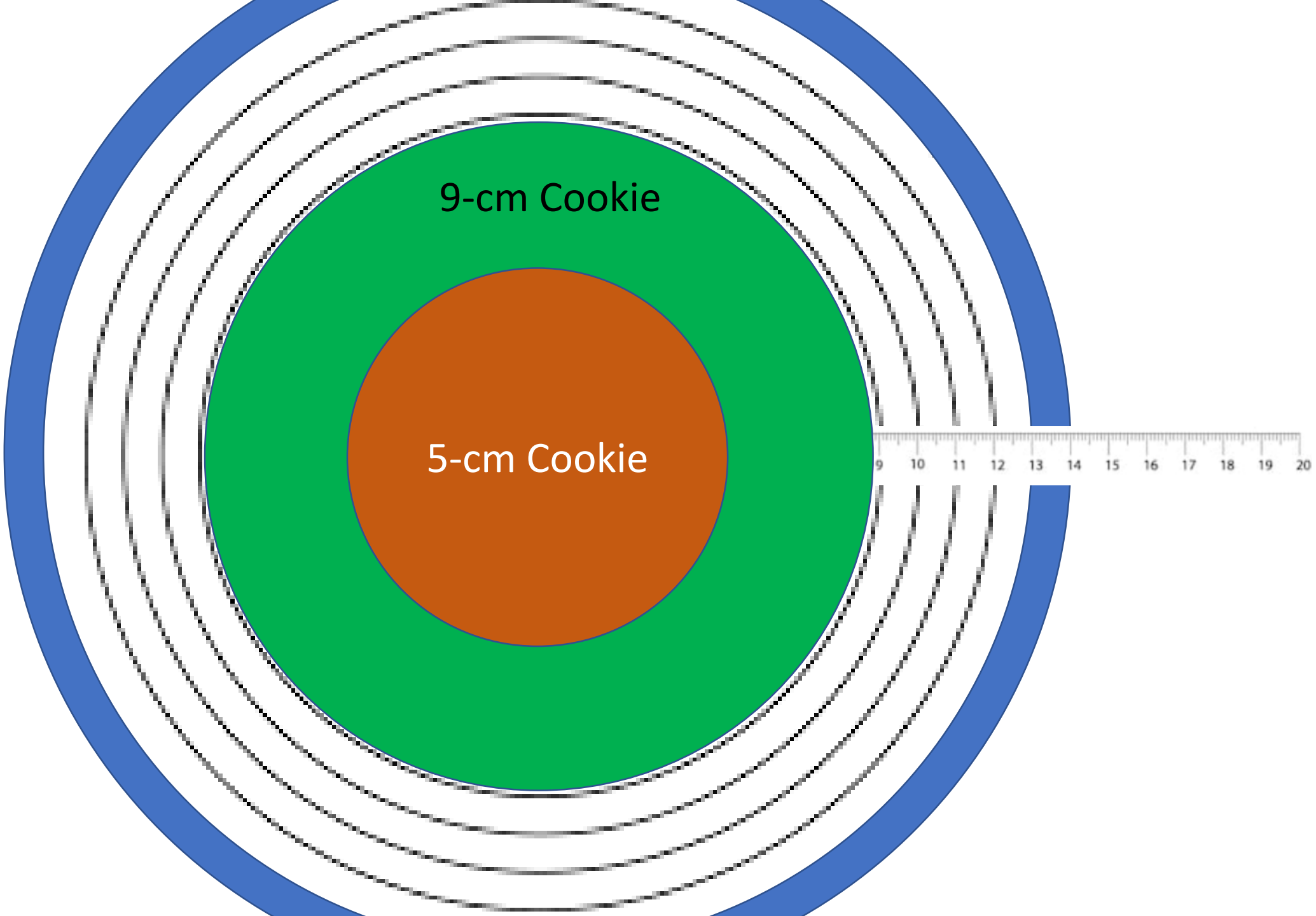
We are now going to start making two unequal size cookies, one smaller and one larger, always keeping the average radius of the two cookies equal to 7 cm, the initial radii of the two cookies. Each time we will compute the total area of the two cookies and the average area per cookie..


8-cm Cookie
6-cm Cookie
9
10
11
12
13
14
15
16
17
18
19
20

Total cookie area =
$\pi 8^2 + \pi 6^2 = 100\pi = 2\pi(50)$

Area of average cookie = $(50)\pi$

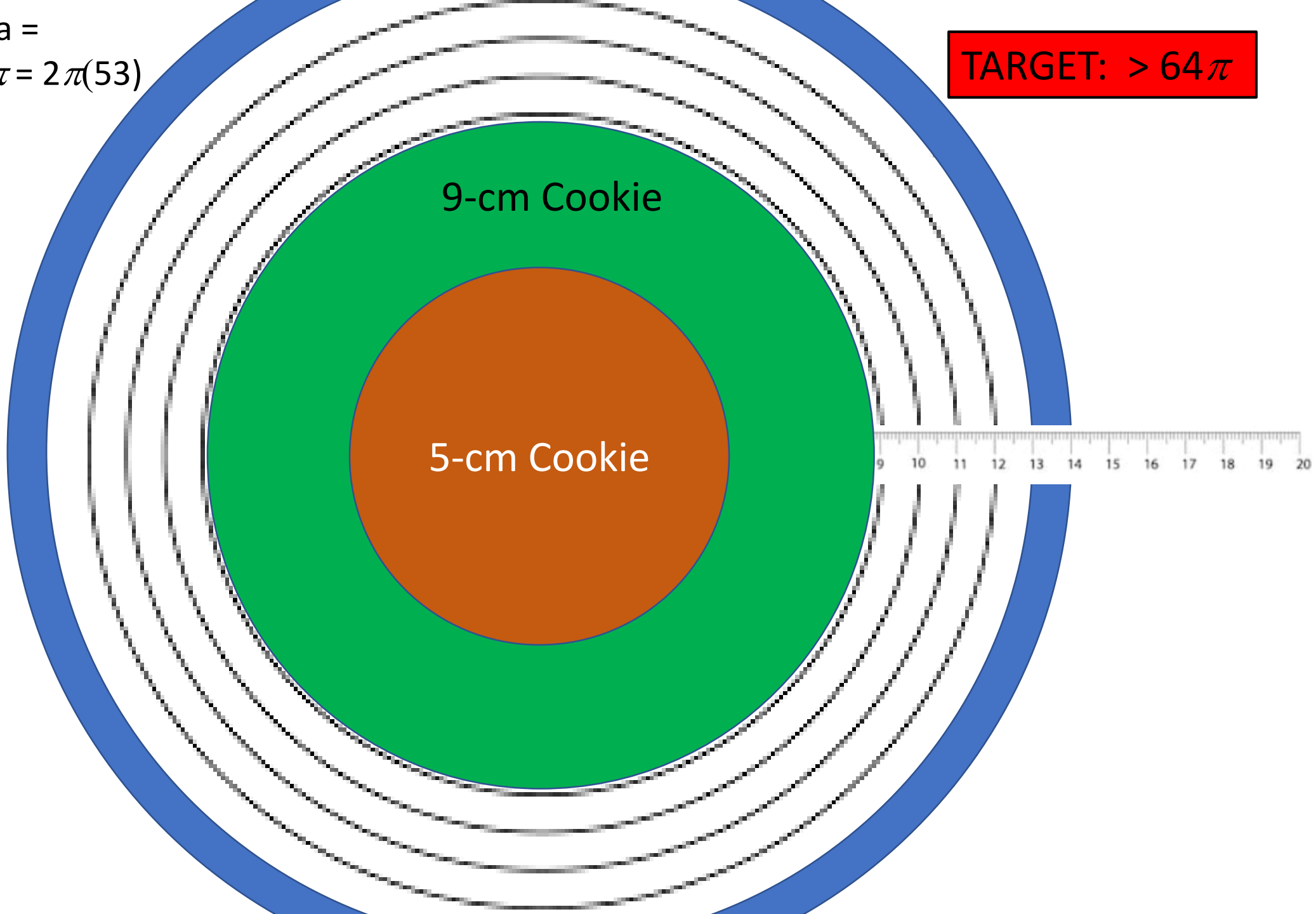
TARGET: Making Area of average cookie > 64π

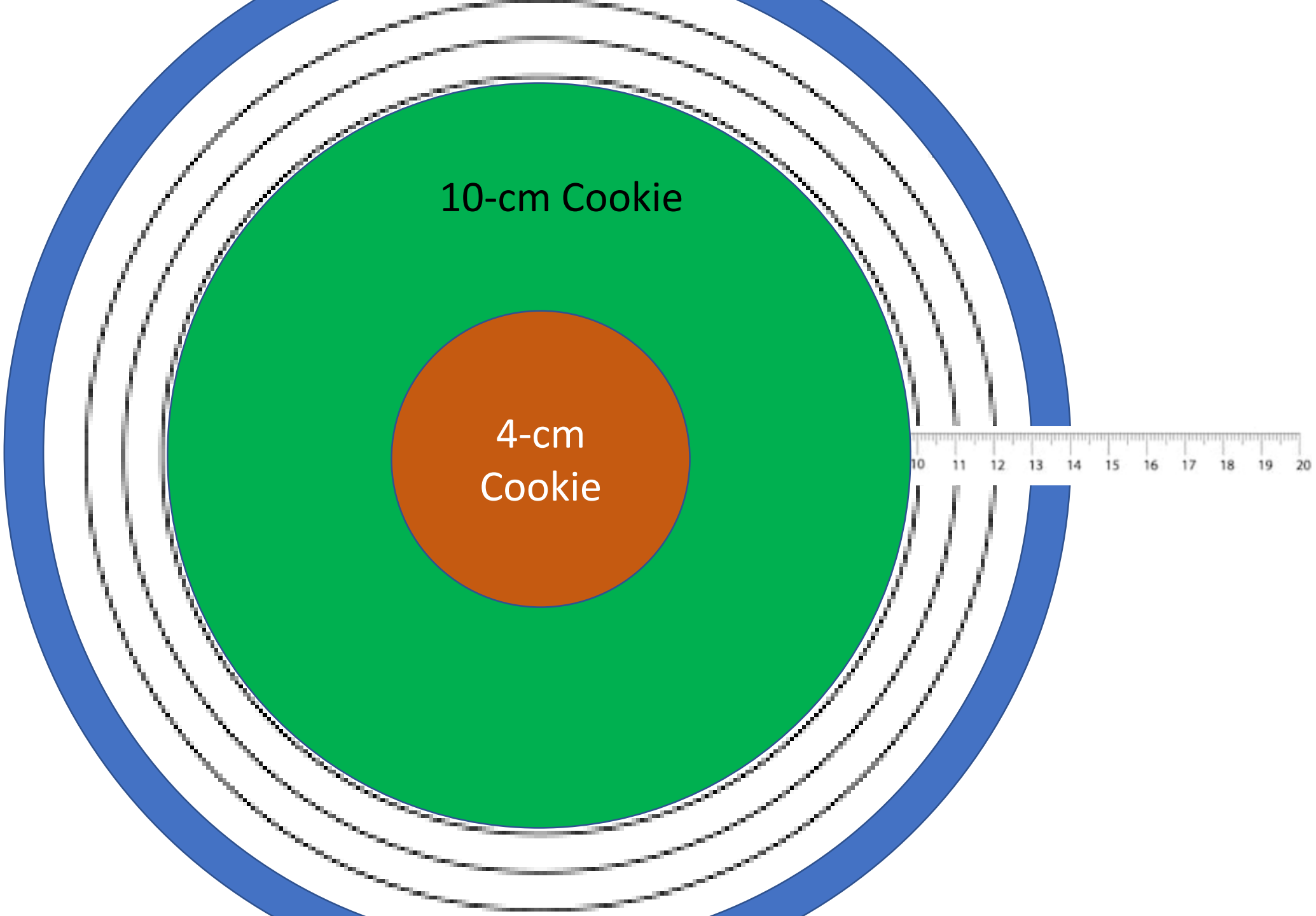

9-cm Cookie
5-cm Cookie
9
10
11
12
13
14
15
16
17
18
19
20

Total cookie area =
$\pi 9^2 + \pi 5^2 = 106\pi = 2\pi(53)$

Area of average cookie = $(53)\pi$

TARGET: $> 64\pi$

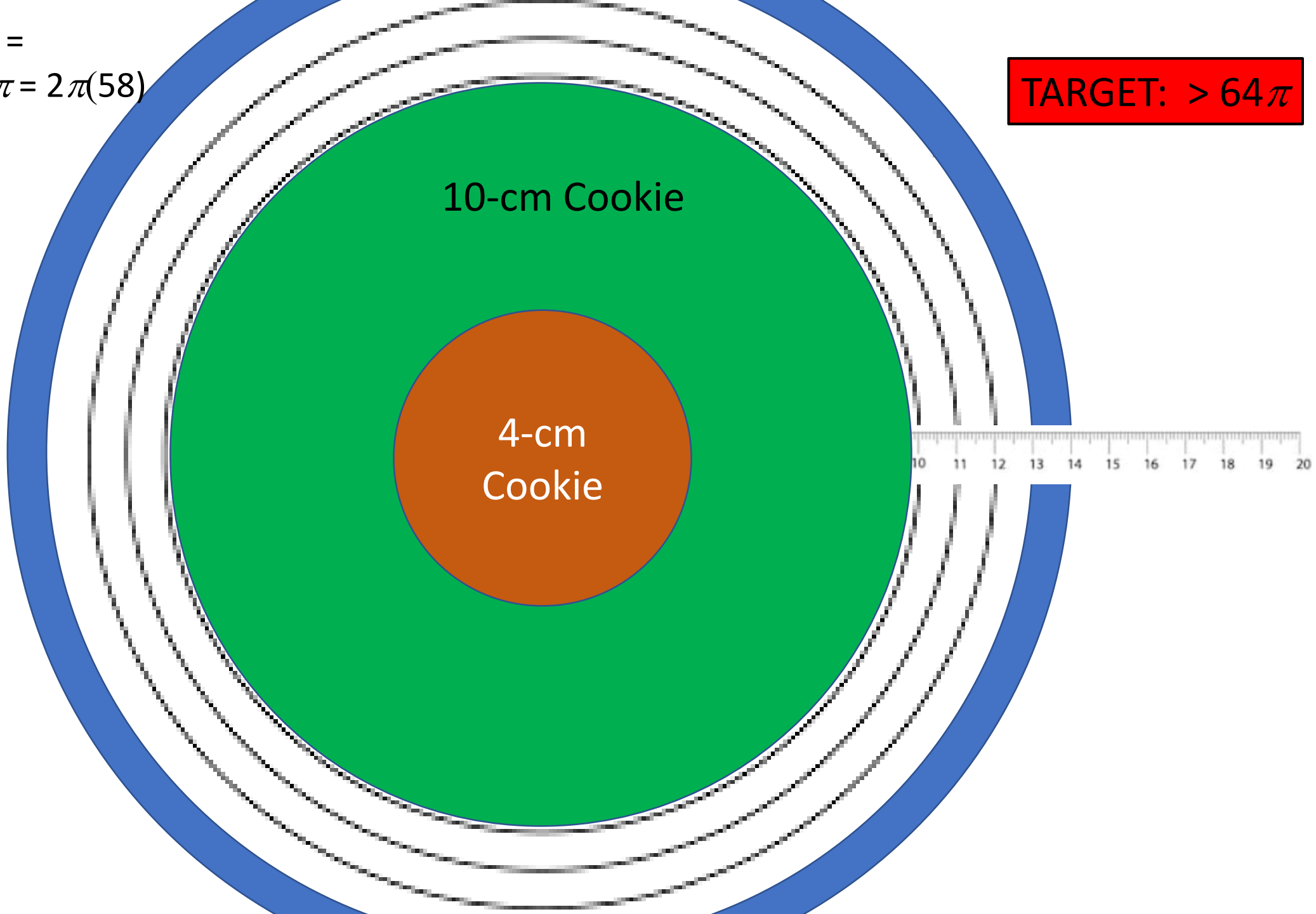



10-cm Cookie
4-cm
Cookie
10
11
12
13
14
15
16
17
18
19
20

Total cookie area =
$\pi 10^2 + \pi 4^2 = 116\pi = 2\pi(58)$

Area of average cookie = $(58)\pi$

TARGET: $> 64\pi$

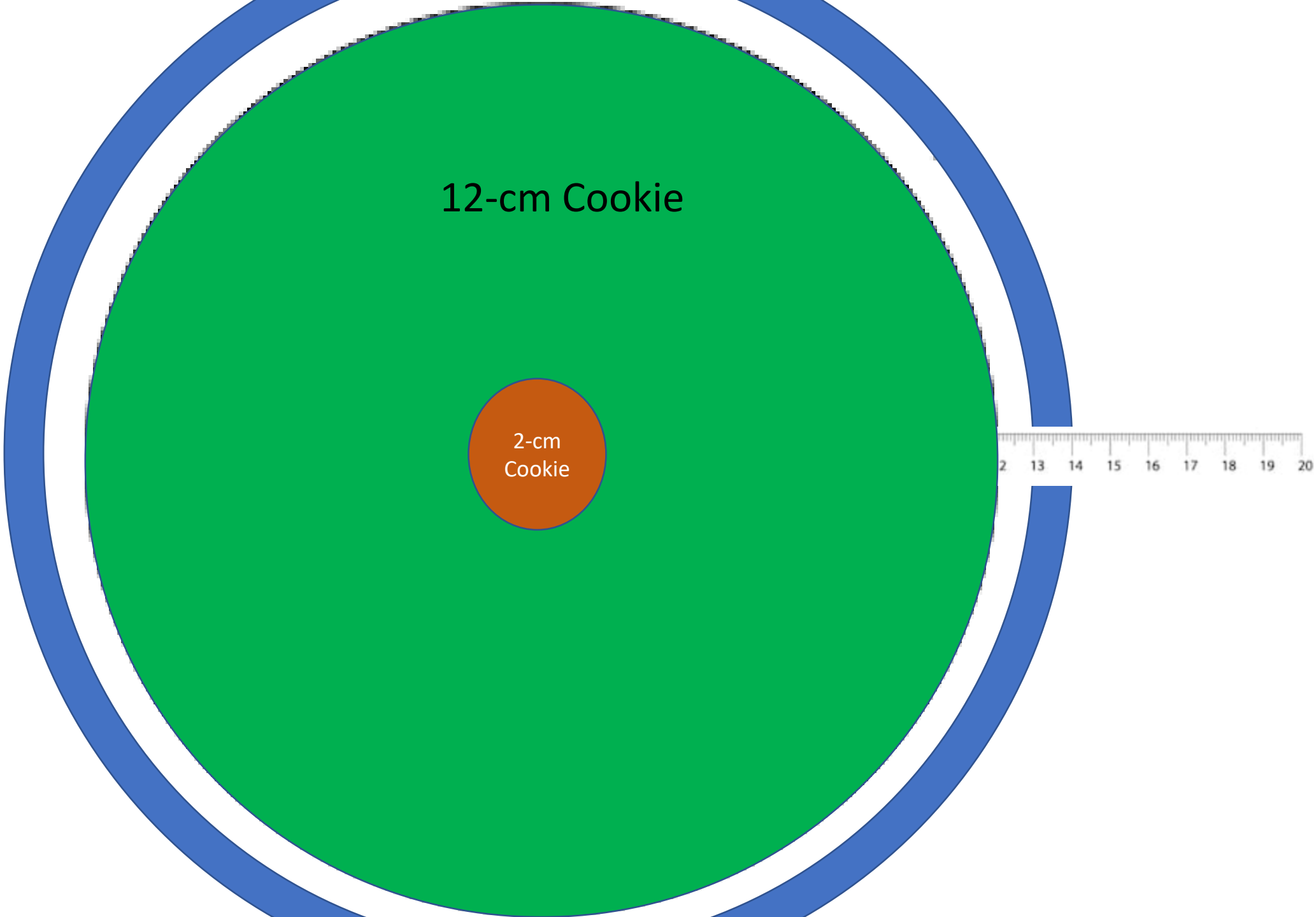



11-cm Cookie
3-cm Cookie
11
12
13
14
15
16
17
18
19
20

Total cookie area =
$\pi 11^2 + \pi 3^2 = 130\pi = 2\pi(65)$

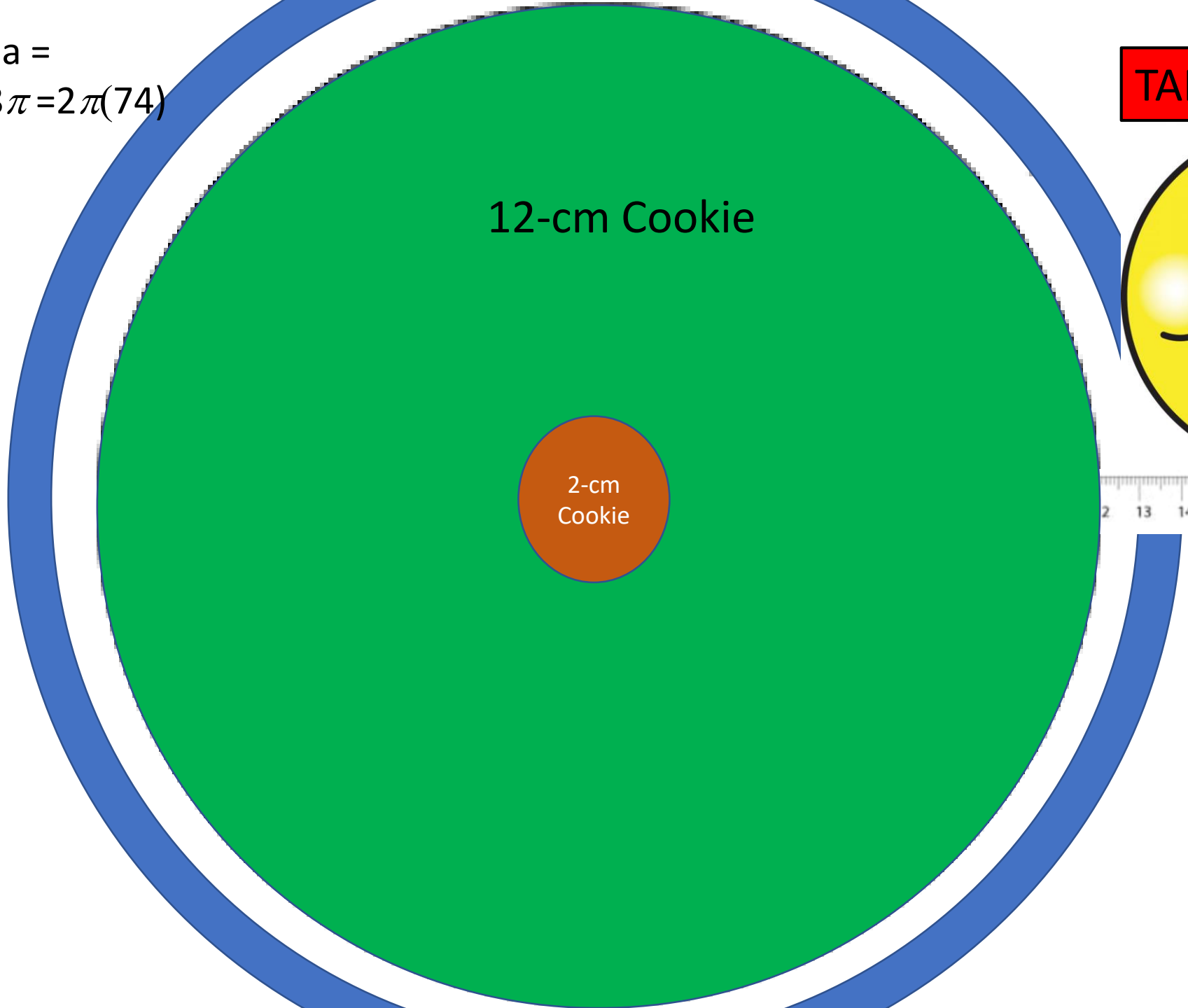
Area of average cookie = $(65)\pi$

TARGET: $> 64\pi$

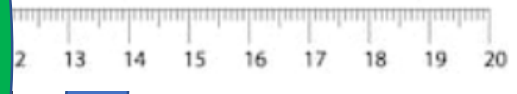

12-cm Cookie
2-cm
Cookie
12
13
14
15
16
17
18
19
20

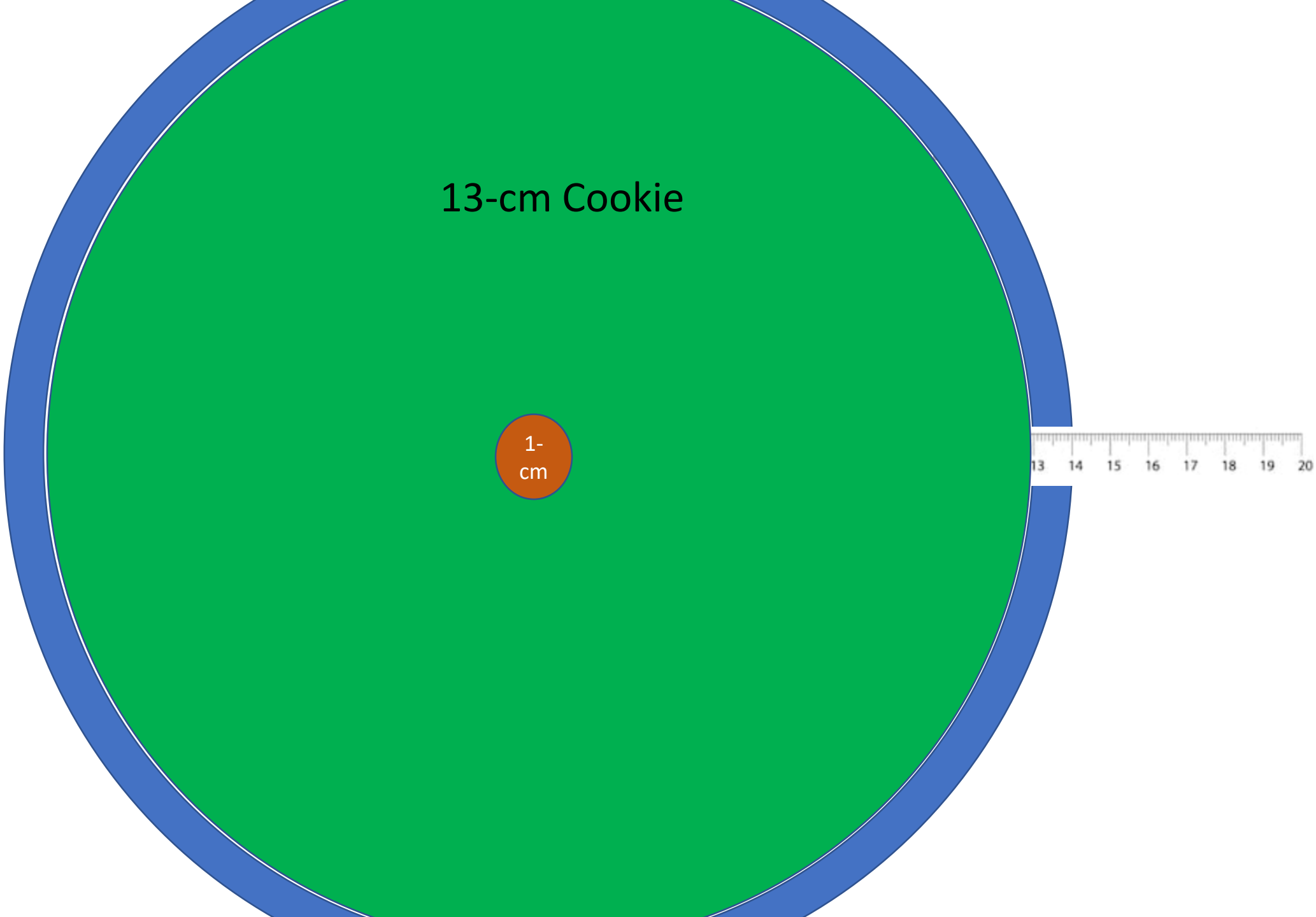
Total cookie area =
$\pi 12^2 + \pi 2^2 = 148\pi = 2\pi(74)$

Area of average cookie = $(74)\pi$



TARGET: $> 64\pi$




13-cm Cookie
1-cm
13
14
15
16
17
18
19
20

Total cookie area =
$\pi 13^2 + \pi 1^2 = 170\pi = 2\pi(85)$

Area of average cookie = $(85)\pi$

TARGET: $> 64\pi$

13-cm Cookie