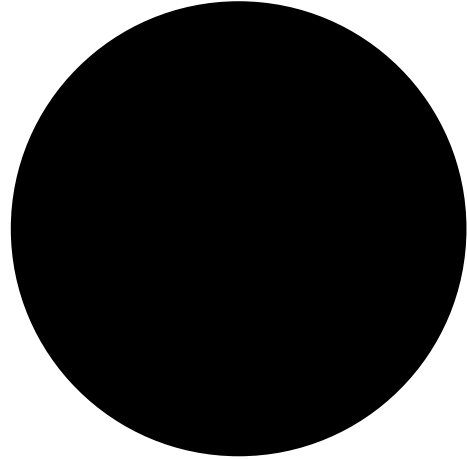

Circle Pattern

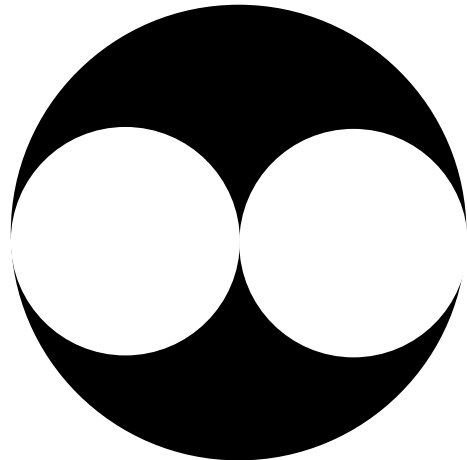
Here is a developing circle pattern.

Here is one black circle.



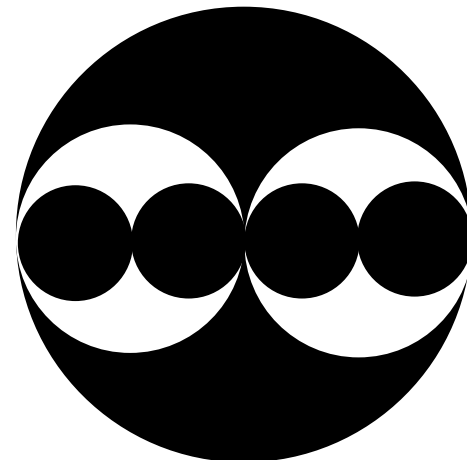
Two white circles of half the radius have been added to the diagram.

1. Show that the fraction of the diagram that is now black is one half.

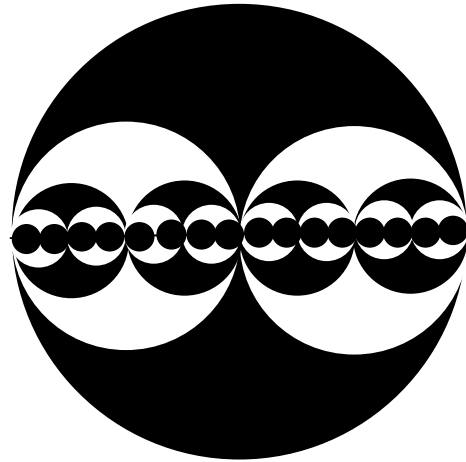
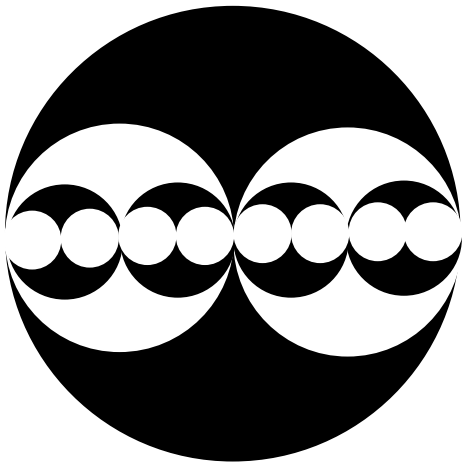


Four black circles have now been added.

2. What fraction of the diagram is now black?



3. Fill in the table to show what happens as the pattern continues.



Pattern	Black fraction	White fraction
One black circle	1	0
Two white circles	$\frac{1}{2}$	$\frac{1}{2}$
Four black circles		
Eight white circles		
Sixteen black circles		

4. Write a description of what is happening to the black and white fractions as the pattern continues.
