

# Syracuse Function Sequences

```
>>> list(syracuse_iter(3))  
[3, 10, 5, 16, 8, 4, 2, 1]  
>>> list(syracuse_iter(5))  
[5, 16, 8, 4, 2, 1]  
>>> list(syracuse_iter(6))  
[6, 3, 10, 5, 16, 8, 4, 2, 1]  
>>> list(syracuse_iter(13))  
[13, 40, 20, 10, 5, 16, 8, 4, 2, 1]
```

- ◆ See the pattern? From 5, we know the rest.
- ◆ Generally, from any number we've already seen, we know the rest.



# Alternate Styles

```
def syracuse2(n):  
    return n//2 if n%2 == 0 else 3*n+1  
  
syracuse3 = lambda n: n//2 if n%2 == 0 else 3*n+1
```