Cody Problem 21. Return the 3n+1 sequence for n

A Collatz sequence is the sequence where, for a given number n, the next number in the sequence is either n/2 if the number is even or 3n+1 if the number is odd. The sequence always terminates with 1.

So if

```
% n = 13
```

Then

```
% c = [13    40    20    10    5    16    8    4    2    1]
```

Scratch Pad

```
n = 13;

collatz(n)
```

```
ans = 1×10
    13    40    20    10     5    16     8     4     2     1
```

```
n = 20;

collatz(n)
```

```
ans = 1×8
    20    10     5    16     8     4     2     1
```

Solution

```
function c = collatz(n)
    c = [n];
    buff = n;
    while buff ~= 1
        if mod(buff, 2) == 0
            buff = buff/2;
            c = [c, buff];
        else
            buff = 3*buff+1;
            c = [c, buff];
        end
    end
end
```