Homework Assignment #2
Due: September 29, 3:30 p.m.

1. Consider the following recursive algorithm:

F(n)
  Precondition: n is a positive integer
  if $n = 1$ then return 1
  else if $n = 2$ then return 3
  else return $F(\lfloor \frac{n}{3} \rfloor) + F(\lceil \frac{2n}{3} \rceil) + 1$
  end if
end F

(a) State a simple postcondition that describes what value F returns.

(b) Prove that the algorithm terminates and satisfies your postcondition if it is called with any input that satisfies the precondition.