PHYSICAL MODELING IN MATLAB

EXERCISE 2.1

Write a MATLAB expression the approximation of the 10^{th} term of the Fibonacci series:

$$f_n \approx \frac{1}{\sqrt{5}} \left[\left(\frac{1+\sqrt{5}}{2} \right)^n - \left(\frac{1-\sqrt{5}}{2} \right)^n \right].$$

Save it in a script file named *fibonacci1*. At the prompt, set $n = 10$ and run the script.

The MATLAB script, *fibonacci1* contains:

```
% Exercise 2.1 - script "fibonacci1"
%
% define the approximation to the nth term of the Fibonacci series
fib = (((1 + sqrt(5)) / 2)^n - ((1 - sqrt(5)) / 2)^n) / sqrt(5);
% record answer
ans = fib;
```

To run:

```
% initialize n to be 10
n = 10;
% call the script fibonacci1
fibonacci1;
% display the result (should be 55)
ans
```