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Remember to indent the bodies of your IF-THEN and looping structures.

- 1) (2 pts) Look up the `floor` function in MATLAB to see what it does. Write a short section of code that will use the `floor` function to test whether or not a given number is an integer.
- 2) (4 pts) Write a MATLAB script that will have the user input a value of  $n$ , then compute  $n!$ . Your script should include error checking. If the value of  $n$  is negative or not an integer, the script should print out an appropriate error message, otherwise the program should print out the value of  $n!$ . Remember that  $0! = 1$ . Test your program using  $n = 5, 7.8, -6$ . This program is an accumulation operation, but this time you are accumulating a product, not a sum.
- 3) (7 pts) Write a *single* MATLAB script that will compute the sums below:

a) 
$$\sum_{i=1}^{10} i^2 + i$$

b) 
$$\sum_{i=10}^1 i^2 + i$$
 You should check the value of this sum versus Mathematica, Maple or the Wolfram Alpha site.

c) 
$$\sum_{i=1}^{20} \frac{i+1}{i}$$

d) 
$$\sum_{i=n}^{n^2} \sqrt{i}$$
 You should read the value of  $n$  from the keyboard. Test your program using  $n = 8$ .

e) 
$$\sum_{i=1}^{15} \sum_{j=0}^i i + j + ij$$